

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, Editors.

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Growth of Coal Exports

THIRD place in point of value in exports from the United States in 1920 was taken by coal. Raw cotton and wheat were first and second, with automobiles and leaf tobacco following coal. Because the enormous increase in exports since the war—the total in 1920 was around eight billion dollars—is largely ascribed to the increase in unit values of the products sold abroad, the high position of coal is all the more noteworthy because in point of tonnage it represented such a large gain over all previous records. According to a compilation made by the U. S. Chamber of Commerce, in point of weight coal led the list of exports with nearly 40,000,000 tons—double pre-war figures and 74 per cent over 1919.

The importance of coal as an employer of ocean tonnage is indicated by the fact that nearly 23,000,000 net tons were shipped abroad, as compared with 6,500,000 tons of wheat and 6,000,000 tons of oils. Profitable employment of our new but languishing merchant marine will be easier if coal cargoes can in future be obtained on anything like the scale of 1920. But when France—so coal hungry in 1920—can export coal in 1921 to Great Britain, the prospect of an active demand for American coal in Continental Europe is not bright.

Looking beyond this year and to that period, perhaps not so far distant, when Europe has settled reparations and established credits and industry has again started its upward progress, there is every reason to expect a revival in the European market for coal. To what extent the foreign demand will develop in the next twelve months is a matter of as much uncertainty as the future state of the home demand, but we think growth is as inevitable in the former field as in the latter.

A Time to Exercise Intelligent Self-Interest

THIS week the National Retail Coal Merchants Association meets at Richmond, next week the National Coal Association will convene in New York, and finally the American Wholesale Coal Association will hold its annual conclave at Washington early in June. The officers of the several organizations are holding out tempting programs of general interest, and in one instance at least, promises of special entertainments to induce members to attend. But, be not alarmed; all your time will not be taken up in listening to fine speeches or taking in the sights. Your officers have serious thoughts these days and you will be told of what is transpiring in a national way in the world of trade and legislation. You will be encouraged to give way to your feelings on the Frelinghuysen bills, the Calder propaganda, high freight rates and the general antipathy of coal buyers.

Attendance should be the largest ever. These three associations, representing the three phases of coal from mine to household and to industry, are products of the

war, now going through the readjustment period with other business of the country and trying to justify their peace-time existence before the American people. It is only by the attendance of every man who cares a rap about his affairs that out of these gatherings can come a consensus of opinion and unity of thought that will see the coal industry and trade through what promises to be another year of trial.

How far should the coal industry go with the administration program of less government in business and yet more data on business in the Government? Since the people, through Congress, are resolved to have some legislation on coal, how far should the coal men go in helping frame the measure? How should the coal industry go about putting its case directly before the people of the country? Perhaps, as suggested by T. H. Watkins in his address at Atlantic City in April, the legislation proposed by Senator Frelinghuysen has sufficient merit to represent a base on which to build. Mr. Watkins again brought forth the Garfield plan, for he believes that "all operators are not opposed to discussing or considering constructive legislation in relation to the coal industry as well as to other industries."

The live subjects for discussion are almost limitless; all that is needed is a full attendance to make each of these annual conventions fruitful for the good of the industry and worth the while of the individual.

It Cannot be Done, but It Is Done

FROM the beginning of recorded history there have been those who stood on the side lines and loudly proclaimed "It can't be done," while others took off their coats and did it. Doubtless when the first iron boat was being put together, some local prophet was busy pointing out that iron is heavier than water and that the enterprise, therefore, was doomed to failure. Flying in a machine heavier than air was one of those impossible things—until the Wright brothers did it. Everyone is familiar with the exclamation of the man from the country who saw a giraffe for the first time—"Mariar, there ain't no such animal."

Not so long ago George H. Cushing, the executive head of the national association of the coal jobbers, made a voluntary report to Secretary Hoover on the general subject of coal. The burden of this 3,000-word letter report was that coal is not produced in equal monthly installments because it is not burned that way and it cannot be stored during periods of low consumption against the need in times of greater consumption because the producer and consumer cannot by any manner of means be induced to store it. By a truly marvelous process of reasoning—so devious as to baffle the mind, but so conclusive because supported by such an array of statistics—Mr. Cushing shows that "the three parties in interest [consumers, railroads and government] shirk the responsibility," and that the cost of storage must therefore be borne by the producer.

Statistics are susceptible of becoming a habit, just like many other things. And when one gets the habit, he must have his statistics in spite of the eighteenth or any other amendment. If he can't get some with an official stamp on them he will set up his still or hop kettle and make home brew. In attempting to prove that coal cannot and will not be stored by the consumer Mr. Cushing has fortified every point in his argument with statistics, most of which must be good because they are his own make. For instance, the cost of storage is given as 75c. per ton and the interest on the coal and freight money as 24.51c. or a total not of about one dollar but of 99.51c. Again, "If we should try after April 1 to bring production always up to the average by storing that coal which is produced in excess of current demand—in 1920, for example, it would have been necessary to store 27,837,116 tons. . . . The total cost—exclusive of degradation or loss—peculiar to storage alone is \$27,700,714.13." When he gets it down to 13c., one cannot fail to be impressed with his higher mathematics. Necessity, it is said, is the mother of invention.

Early in his argument Mr. Cushing makes the serious error of not differentiating between demand for coal and consumption of coal. He says that there are two causes for the fluctuations in coal production and that both "prove that the coal trade merely holds the mirror up to American life to reflect it." His conclusion, "It follows that when you see fluctuations in coal production, you may expect to find corresponding fluctuations in the use [consumption] of coal generally," does not follow, of course. From this point on to his final paragraphs, wherein he lays all the blame for variations in coal production on the farmer and the "preoccupation of the people—and the exhaustion of their money reserves—due to the Christmas holiday indulgences," Mr. Cushing argues on the false ground that coal is produced only as it is at once required for consumption, instead of as it is demanded for purchase.

After being so completely convinced by Mr. Cushing that the coal consumer cannot be induced to store coal, it is disquieting to one's peace of mind to have the government come out with a report showing that millions of tons of coal are stored and are now piled in reserve by consumers. According to Mr. Cushing in that hectic year of 1920 it would have required 27,837,116 tons of coal in storage to fill his requirements of the situation, but it could not be done. Nevertheless from June 1 to Dec. 31 there was put in storage by consumers the sum of about 25,000,000 tons of coal and the total stocks at the end of the year were around 45,000,000 tons.

The fact is that consumers have never refused to store coal when they thought they really needed it, and the cost never has been a deterrent. Whether the actual cost of unloading coal from cars into stock piles and taking it out again be 20c. or a dollar, and it certainly has that range, depending on size of operation and local conditions, it must not be forgotten that buyers paid premiums of \$5 or more per ton last year for coal to put in storage. The cost of this coal and of the storage was of minor consideration in the mad desire to accumulate reserves. It seems fairly clear that the problem of stabilizing the bituminous-coal industry largely revolves around a diversion of intense consumer interest in coal at high prices to more interest in coal when it is to be had at lower prices, in order that there may not be the necessity for such high prices.

Lake Season Opens Late but Auspiciously

ALTHOUGH the tonnage of cargo coal dumped at Lake Erie ports this year up to May 1 has been the largest on record—1,176,508 tons, compared with 1,133,000 tons in 1919, the previous high record—the lake season is considered one of the slowest on record. Of the 22,408,000 tons of coal sent up the Lakes last season to American and Canadian ports, there remains in the hands of the American distributors on Lakes Superior and Michigan some 2,250,000 tons undelivered, if not largely unsold. This "carry-over" is reported to be three times as great as last year and to have been exceeded in recent years only by that on April 1, 1919, when the dock men had more than 3,370,000 tons left over from the receipts of 1918.

A severe instead of a mild winter would have resulted in much smaller stocks at the docks this spring, despite the lethargy of business. It is again the problem of the operators of the docks at the head of the Lakes to estimate almost a year in advance just what coal will be required by the Northwest and to take steps to get it up the Lakes while the weather permits and in advance of the need for the greater portion. No longer, however, can the docks expect to supply the total requirements of the Northwest, for all-rail coal from Illinois and Indiana has invaded this market in large and increasing degree in the past few years to add to the market problems of the old-time Lake distributor.

Dock operators were, more than any other section of the coal trade, caught at the end of last year with large stocks of "high-priced goods on their shelves" with a declining market. Coal bought during the summer of 1920 at the peak of prices and in part shipped up on the new high freight rates had to meet competition with cheaper Illinois coal and be sold when the demand had largely fallen off. The losses on this operation must of necessity have been serious, but as one of the fortunes of the Lake trade they have been faced quietly as part of the readjustment.

A new season has opened with conditions in some respects more favorable to the trade. In the first place there is no demand this year for pooling of coal, and there is therefore more opportunity to meet the exacting demands of consumers with particular grades of coal and for shippers to play up their individual product. The Ore and Coal Exchange, with Herman M. Griggs as manager, will be operated as a clearing house for the ore and coal trade in all respects similar to that in previous years save that of pooling. Under the leadership of Mr. Griggs the exchange has proved its value and established a place for itself in dull as well as active times. It is the one typical coal "exchange" in this country.

The present low prices of bituminous coal and the prospective higher prices next summer and autumn represent an incentive for prompt buying and storage that is certain, as in 1919, to be taken full advantage of by the coal men who know better than the industrials how to read the signs. Reduction in the freight rate to lower Lake ports and expected reductions in the rates from the upper docks to interior points are opportune in giving an impetus to the shipment of Lake coal. It appears that the greatest deterrent in sight is lack of boats in which to put the coal up the Lakes, due to the lack of ore and grain cargoes down. The lower Lake ore docks are better supplied with ore than the upper Lake docks are with coal.

Woodward Breaker Sizes and Prepares Six Thousand Tons of Anthracite Per Day

Million Dollars Expended in Its Construction Has Been Justified by Labor Saving Alone—Steel Frame and Glass Walls Render Interior Almost as Light as Outdoors—New Devices for Sprinkling Shakers and Guarding Shafts—Chestnut Washed in Two Sizes

BY DEVER C. ASHMEAD
Wilkes-Barre, Pa.

DURING the past two decades or thereabout a marked change has taken place in the methods of constructing buildings followed at the collieries of the anthracite region. How complete has been this reversal of practice is best attested by the type of breaker buildings now being erected. Formerly careful attention was not given to the external appearance of such structures. They were built to give a certain service, and if this was forthcoming nothing more was expected. An attractive exterior was not sought. The design followed was more or less of a temporary nature, and untreated wood was the material employed. This made the life of the building comparatively short and further replacements were frequent and repairs heavy.

This is now changed. Steel and concrete enter largely into the construction of practically all present-

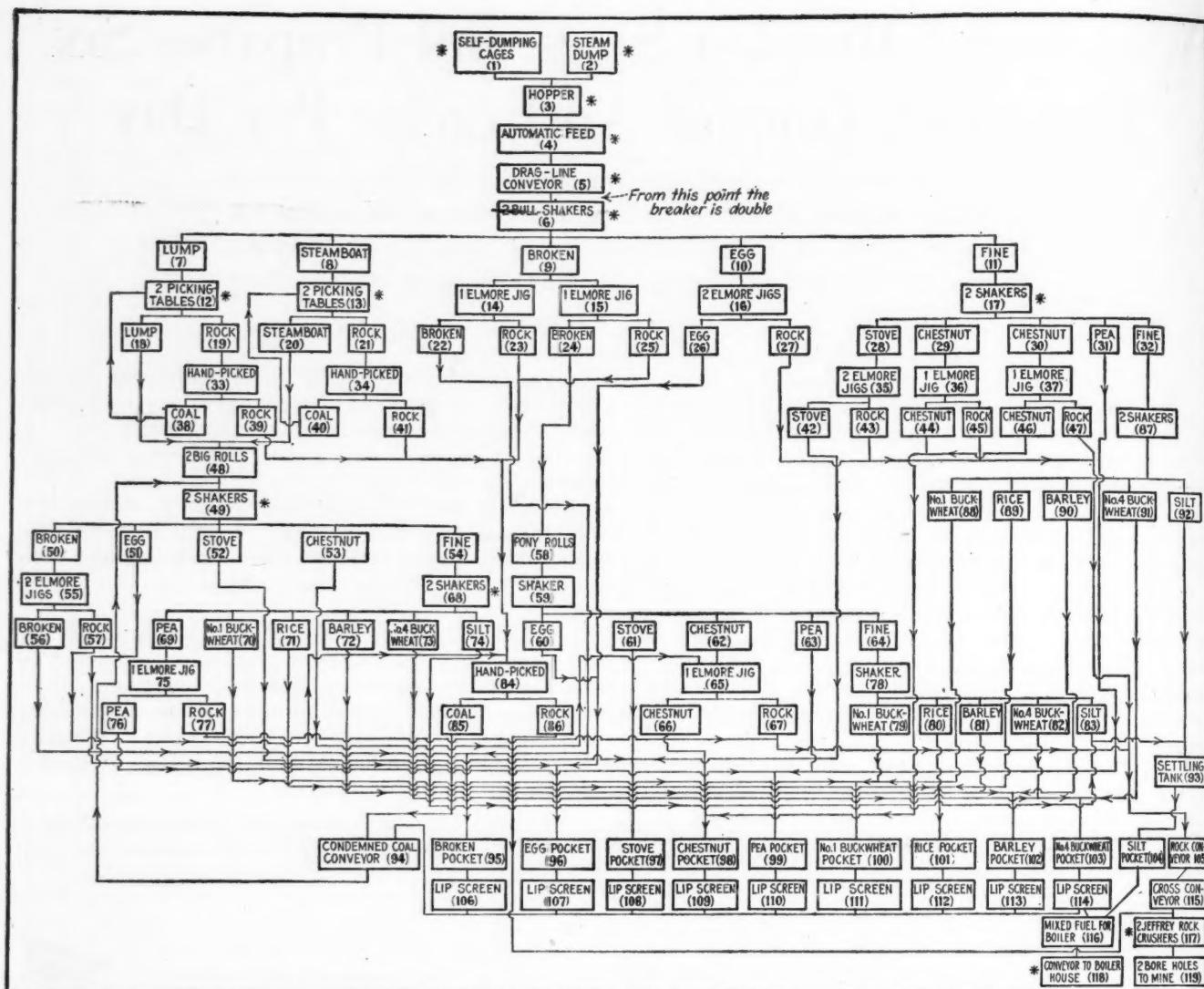
day mine buildings; so that these structures are of a relatively permanent character. They are built sufficiently large to accommodate any growth that may be expected or logically anticipated. The danger of destruction by fire either to the building itself or the machinery it houses is materially lessened, and by the admixture of a small amount of artistic taste the whole installation is rendered more attractive and consequently a more pleasant place wherein to earn a livelihood.

It is but natural to expect that the newest of the new breakers in the anthracite region should show to what extent this change in ideas has progressed. It is the purpose of this article to describe the new Woodward breaker of the Delaware, Lackawanna & Western R.R., Coal Department, which is located at Edwardsville, Pa.



MILLION DOLLAR BREAKER OF DELAWARE, LACKAWANNA & WESTERN R.R., COAL DEPARTMENT AT EDWARDSVILLE, PA.

A steel, glass and concrete building, 213 ft. long, from 65 to 107 ft. wide and from 100 to 145 ft. high. It contains 3,000 tons of structural steel and 26,000 panes of double-thick ribbed wire glass



FLOW SHEET SHOWING PREPARATION METHOD AND FINAL DISTRIBUTION OF PRODUCT TO POCKETS.
BOILER HOUSE AND MINES

From the point indicated the breaker is double and the parts named should be regarded as being representative of the equipment and product in each half. However, where an asterisk is placed at the side the two sides of the breaker use the equipment mentioned in common.

Originally the breaker at this plant was of the dry-preparation type. Because of the peculiarly bone-dry character of the coal which was treated in it it was impossible to devise any effective method of eliminating the dust. It is said that in parts of the old building the cloud of dust hung so thick in the air that a man could scarcely see his hand if held before his face.

When the old breaker proved too small to handle the output of the mine and it became known that the large quantity of dust was detrimental to the health of the employees the company determined to construct a new and better building. The first design provided for another dry breaker, and the steel work was purchased with this idea in view. It was later decided, however, to alter the method of preparation and to employ the wet process.

Steel, glass and concrete are the materials which make up the present breaker, which is of large dimensions. The building is 213 ft. long, one half of it being 65 ft. and the other half 107 ft. wide. It rises 100 ft. above the ground at its upper end and 145 ft. at its lower end. In its construction were employed 3,000 tons of structural steel, 26,000 panes of double-thick ribbed wire glass as well as several hundred bags of cement, this material being used in the roof as well as in the floors and foundations.

During construction the interior of this building appeared like a network of steel beams, girders and columns. It began to take shape, however, with the laying of floors, the building of chute frames and the construction of eighteen large pockets to hold the prepared product. In this work 1,500,000 ft. of 2- and 3-in. yellow pine planking and ceiling was employed. The chute linings required 375,000 lb. of sheet steel. Along the interior sides and ends of the structure are 41,000 ft. of various sizes of wrought pipe, forming a steam-heating system that effectively warms every nook and corner of the building. This insures the safety of the equipment during freezing weather as well as provides for the bodily comfort of the employees during the cold season.

All the machinery in this building is electrically operated, thirty-two motors being employed for this purpose. Each motor is provided with its own starting box and controller. A central switchboard is installed from which the entire operation of the breaker can be controlled. Fifteen thousand linear feet of conduit pipe was necessary for the wiring. The total installed power of the motors, which were all furnished by the General Electric Co., is 2,185 hp.

This breaker has a capacity of 6,500 tons of coal in eight hours and can easily treat the output of the mine,

amounting to 1,250,000 tons per year. The biggest day's work so far has been 5,900 tons of coal or 136 railroad-car loads. Already about 100 cars are shipped daily. As the preparation is a wet one an enormous quantity of water is required. This is obtained from the Susquehanna River, on the banks of which a pumping station has been built. Here two 4,000-gal. centrifugal pumps are installed.

The mine itself has three main openings—two shafts and one slope. The slope has a capacity of 268 mine cars per day. No. 2 shaft hoists 489 mine cars and the main shaft about 1,243 mine cars, making a total of 2,000 cars dumped on an average each shift.

MAIN SHAFT HAS SELF-DUMPING CAGES

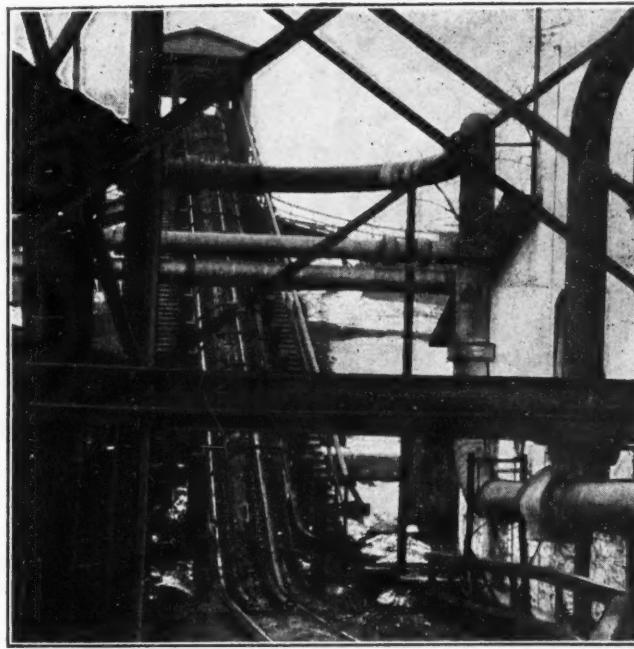
The main shaft is located at the breaker, the coal being hoisted in self-dumping cages and passing by a chute into a pocket which also receives the coal from the two other openings. These being at some distance, the coal from them is brought to the breaker by a surface tramroad, where it is discharged by a steam dump into the pocket just mentioned.

In order to understand the various processes through which the coal is put reference should be made to the accompanying flow sheet. Numbers shown in the text correspond to similar numbers on this flow sheet to aid the reader in following the various processes. From the hopper (3) previously mentioned the coal is fed automatically to the main horizontal dragline conveyor, which moves it about 140 ft. to the head of the breaker. This dragline discharges into a chute which divides the coal equally between, and feeds it to, two bull shakers (6) on each of which lump (7), steamboat (8), broken (9), egg (10) and fine (11) are made, the fine material passing through the lowest deck.

COAL IS DIVIDED AT ONCE INTO FIVE SIZES

This is in reality a double breaker, similar operations being performed upon either side. This statement, however, is not strictly true, as in one or two instances where an insufficient amount of coal is obtained for duplicate operations the quantities made are combined and only one operation performed. Such points will be noted as they are reached in the following description:

The lump coal (7) from the upper deck of the shakers



CAR HAUL FOR EMPTIES OF NO. 2 SHAFT AND SLOPE

The main shaft has self-dumping cages but the cars from No. 2 shaft and the slope, numbering in aggregate 757 a day, are discharged by a steam dump. After being discharged they are dropped by gravity to the foot of the car haul and are then distributed by gravity to No. 2 shaft and the slope.

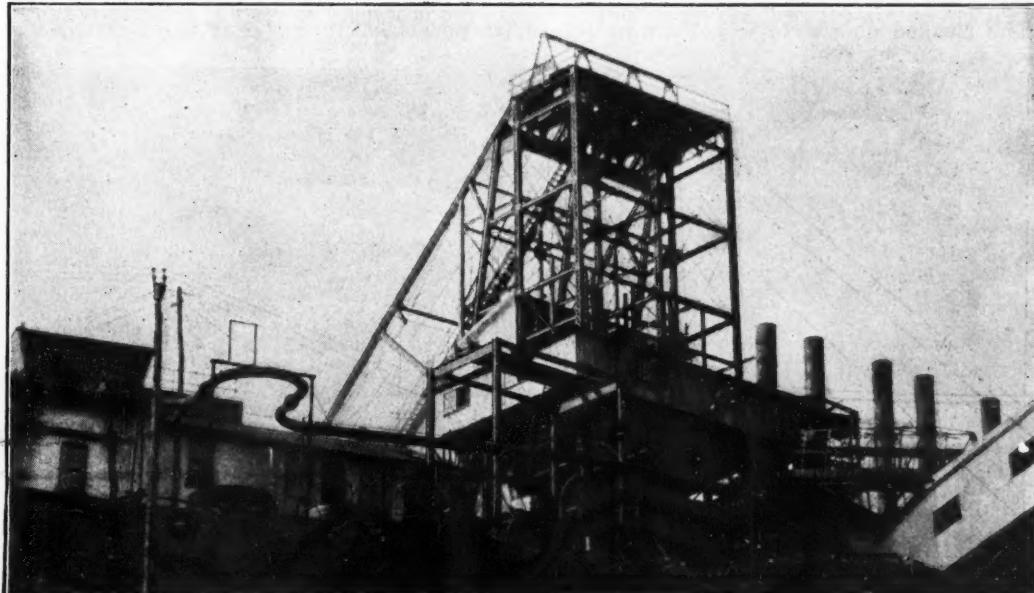
(6) passes onto picking tables (12) as does also the steamboat (8), which is separated on the second deck. Four of these tables are installed, two for the lump (12) and two for the steamboat (13). The construction of the rock chutes employed in conjunction with these tables is somewhat out of the ordinary.

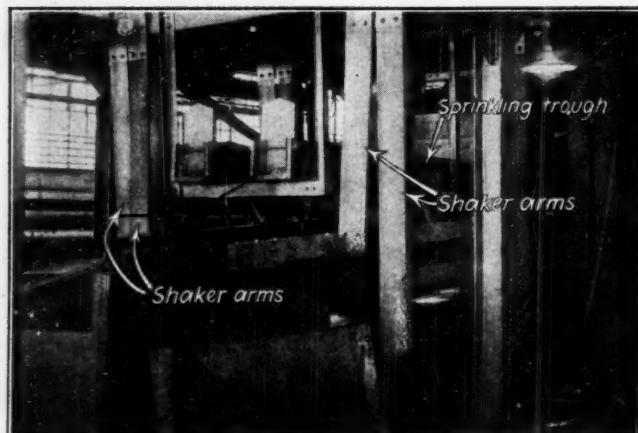
Instead of throwing the rock directly into chutes it is deposited upon flat-topped tables, where it is picked over a second time to see that no marketable coal is mixed with it. The very character of these tables requires that each lump of rock be handled a second time in order that it may be pushed to the center, where a hole permits it to pass to the rock chute. This hand-picking of the lump and steamboat rock is indicated on the flow sheet by items (33) and (34).

The hand-picked lump (18) and the steamboat (20) join and pass to two big rolls (48), where they are crushed. The coal recovered from the rock, as men-

Main Shaft

Hoists 1,243 mine cars daily. Self-dumping cages are used. The shaft has four compartments. A chute carries the coal to a hopper which feeds the main dragline conveyor, part of the housing of which can be seen on the extreme right.





FINE-COAL SHAKER FOR SMALL COAL FROM EIG ROLLS

Note the shaker arms and more particularly the sprinkling trough which is roughly sketched in an illustration on the next page.

tioned above, is thrown back onto the picking tables and also passes to these same rolls. These crushers have their own shakers (49), where broken (50), egg (51), stove (52), chestnut (53) and fine (54) coal are prepared.

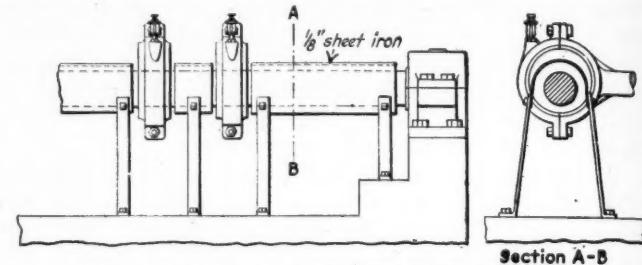
The broken coal passes to an Elmore jig (55), where the rock (57) is removed from it. The clean broken product (56) then goes to the broken pocket (95). The egg coal (51) and the stove (52) also pass to their respective pockets, (96) and (97). For the time being we will now leave the balance of the coal treated on shaker (49), as some of this material receives treatment in combination with that from other shakers, and will revert to the treatment of the other coals prepared on the bull shakers (6).

SOME BROKEN COAL MADE AT THIS BREAKER

The broken coal (9) passes to two Elmore jigs (14) and (15), where it is cleaned. From one of these machines (22) the coal goes to the broken pocket (95), while from the other it proceeds to the pony rolls (58). From the pony rolls the coal goes to a set of shakers (59), on which egg (60), stove (61), chestnut (62), pea (63) and fine coal (64) are separated. The egg and stove coals from this shaker pass to their respective pockets, (96) and (97). The chestnut coal (53) from shaker (49) unites with the same size (62) from this shaker and is treated in an Elmore jig (65). The cleaned chestnut (66) then passes to its pocket.

Pea coal (63) does not receive further treatment but is ready for its pocket (99). The fine coal (64) passing through the lower deck of shaker (59) goes to another shaker (78), where all sizes down to silt are separated. The No. 1 buckwheat (79), rice (80), barley (81), and No. 4 buckwheat (82) go to their respective pockets, (100), (101), (102) and (103), while the silt goes to the settling tank (93).

We will now return to shaker (49). The fine coal separated on this screen, which is the only size not previously discussed, passes to another shaker (68). Two of these screens are installed, one on each side of the breaker. On these pea (69), No. 1 buckwheat (70), rice (71), barley (72), No. 4 buckwheat (73) and silt (74) are separated. The pea coal is treated in an Elmore pig (75)—that is, this size from both shakers



METHOD OF GUARDING ECCENTRIC SHAFT

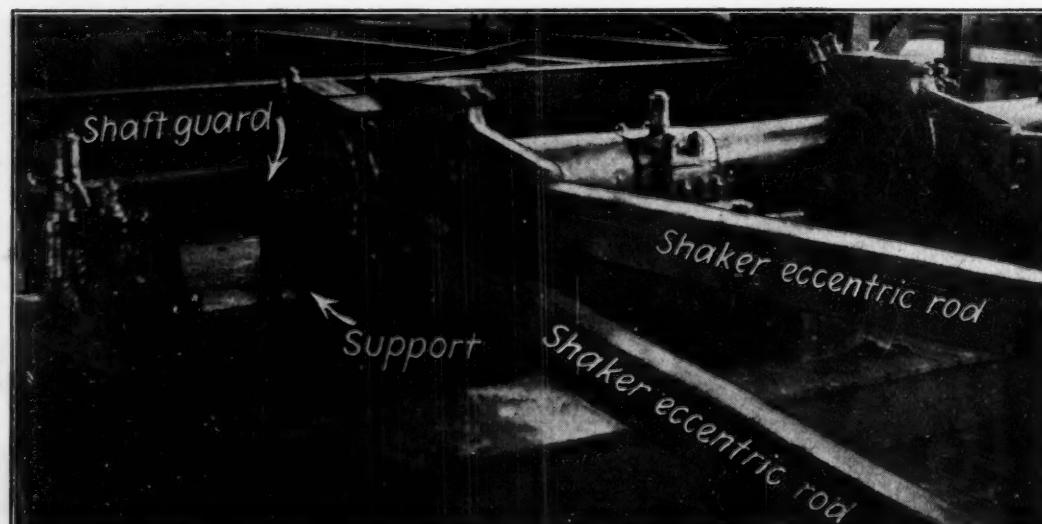
This form of guard does not interfere with oiling as would a fence. A photographic illustration at the bottom of the page shows the same device.

unites and is washed in the one jig. The other sizes are made pass to their respective pockets, except, of course, the silt (74) which joins that from the other shakers and goes to the settling tank (93).

CHESTNUT WASHED AS TWO SIZES SOLD AS ONE

We will now turn back to the egg coal produced on the bull shaker (6). This is treated in two Elmore jigs (16), the cleaned product (26) going to the egg pocket (96). Fine coal (11) passing the lower deck of the bull shaker goes to other screens (17) where five sizes—stove (28), chestnut A and B (29) and (30) respectively, pea (31) and fine (32)—are made. The stove coal (28) is treated in two Elmore jigs (35), the cleaned product (42) passing to its pocket (97).

Two sizes of chestnut, for convenience here designated A and B, are made on this shaker. Each size joins with the corresponding product prepared on the other shaker and passes to the Elmore jigs, (36) and



Shaft Guard

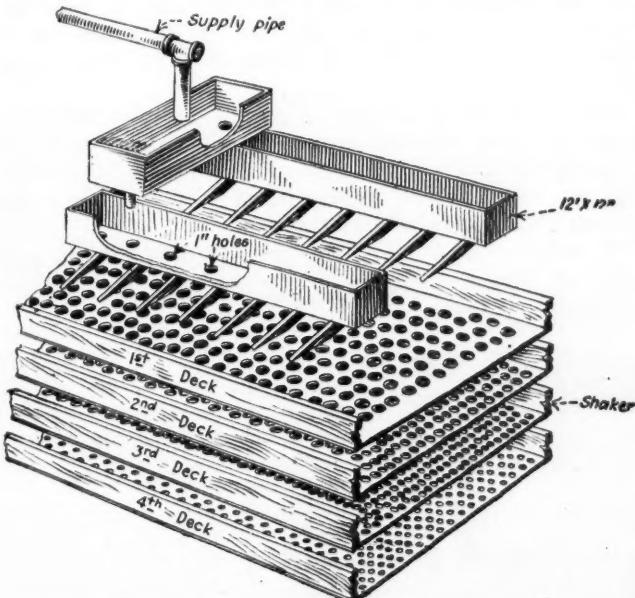
Here can be noted the eccentrics and their rods, the shaft guard and the method of support from below. The shaft revolves under this stationary hood.

(37). This permits of better jigging, as more satisfactory results are obtained when the sizes treated are nearly uniform. After the coal leaves the jig the two sizes combine, (44) and (46), and proceed to the chestnut pocket (98).

Pea coal from this shaker receives no further treatment but is ready for shipment and is accordingly sent to its pocket (99). The fine coal (32) goes to two shakers (87), where it is sized into No. 1 buckwheat (88), rice (89), barley (90), No. 4 buckwheat (91), and silt (92). None of these sizes receives further treatment, those marketable proceeding to their respective pockets, while the silt (92) goes to the settling tank (93). As soon as this silt has settled it is sent to its pocket (104). The silt and No. 4 buckwheat are mixed to form boiler fuel (116) and taken by a conveyor line (118) to the boiler house on top of the hill.

ROCK IS CRUSHED FOR FLUSHING INTO MINE

Coal from the lip screens (106 to 114) passes to the condemned-coal conveyor, by which it is taken back to shaker (49) for retreatment. Rock from the picking

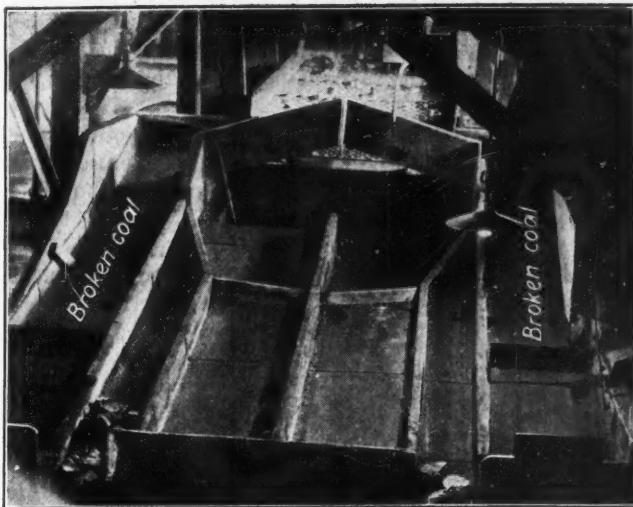


WOOD TROUGH AS SPRINKLING DEVICE FOR SCREENS

This gives a somewhat clearer idea than Fig. 5 of the manner in which the screens are sprinkled. No nozzles are used, as the water is extremely acidulous, metal work speedily corrodes and the orifices, in that event, are apt to clog. The water from the troughs falls on slanting boards and is broken into a spray.

tables, (12) and (13), unites with that from the Elmore jigs, (14), (15) and (55), and passes through a chute to the small picking place (84) on its way to the rock crushers (117). All the rock likewise is collected by means of conveyors (115) and (105) and is brought to these same Jeffrey rock crushers, where all this material is reduced to the proper size for flushing back through boreholes into the mine as filling.

As may be seen, the method of preparation is extremely simple. Arrangements are made so that in case any size for any reason should be dirty and require additional treatment a sufficient number of reserve jigs are provided so that this treatment can be given. As may be observed in the illustrations accompanying this article, adequate accessibility to all machinery is assured. Six jigs are held in reserve for handling an increased output or for use in case of a breakdown to any of the regular machines.



FEW PICKING CHUTES ARE USED IN WOODWARD BREAKER BUT THIS IS ONE OF THEM

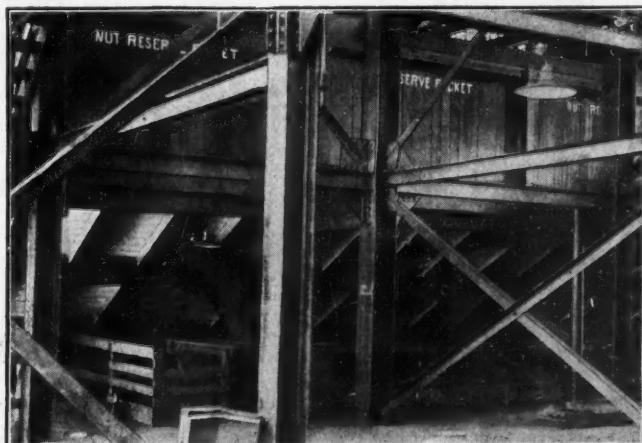
Slate and rock are removed at this point from the broken and egg coal. The broken coal passes down the outside and the egg travels down the middle chute.

Several particularly interesting details in the make-up and equipment of this breaker should be emphasized. In the first place, the means provided for protecting the men from the danger of revolving shafting is somewhat different from that ordinarily employed. Railings are not built around the eccentrics, as is usual. Instead, the shafting itself is protected by semi-cylindrical sheet-iron covers, as shown in one of the illustrations. The other method has its own dangers, for it makes it necessary that the oiler reach through the guarding railing when lubricating the machinery.

RESERVE POCKETS KEEP CHESTNUT FLOWING

Another unusual detail is the provision of reserve pockets for chestnut coal. These are placed on the dirty or feed side of the jigs, so that in case there should be an insufficient supply of coal to feed these machines properly, the reserve may be drawn upon for the required amount.

The method in which water is fed to the screens also differs somewhat from usual practice. Ordinarily such water is sprayed onto the coal by means of special metal nozzles. As a result, if the water is acidulous these nozzles will rapidly corrode and possibly clog. In-



RESERVE POCKETS ALLOWING STEADY FEED TO JIGS

Steadiness of feed is needed if a jig is to give its best results, but this is hard to obtain with the varying conditions at a breaker; consequently at the Woodward breaker pockets have been built to store chestnut coal, which is fed to the jigs as their operation demands.

stead of employing iron pipe and nozzles of this character wooden troughs are used. These are provided with holes in the bottom, through which the water passes, striking against a slanting board and thus forming a spray.

As the side walls of this building are practically all glass it is almost as light inside the breaker as it is out of doors. By the construction of this building and the simplification of the methods of coal treatment a saving has been effected amounting to the services of sixty-three men. This saving in labor is enough approximately to pay the interest on the investment of \$1,080,000 that was necessary to build and equip the breaker.

Petersburg Coal Hoist Is Electrically Operated and Controlled

THE electrically-operated hoist installed at the mine of the Pike County Coal Co., Petersburg, Ind., is of the single-drum three-bearing type. It is driven by a 60-cycle induction motor through an all-metal flexible coupling and single-reduction cut herringbone gears.

The hoist operates in balance with the following loads:

Weight of coal per trip.....	8,000 lb.
Weight of empty car.....	4,000 lb.
Weight of empty cage.....	12,000 lb.
Size of rope.....	1 $\frac{1}{2}$ in.
Total lift.....	430 ft.

The duty cycle is as follows:

Acceleration to full drum speed.....	8 sec.
Full speed running time.....	36 sec.
Total retardation	6 sec.
Rest	7 sec.
Total cycle	57 sec.

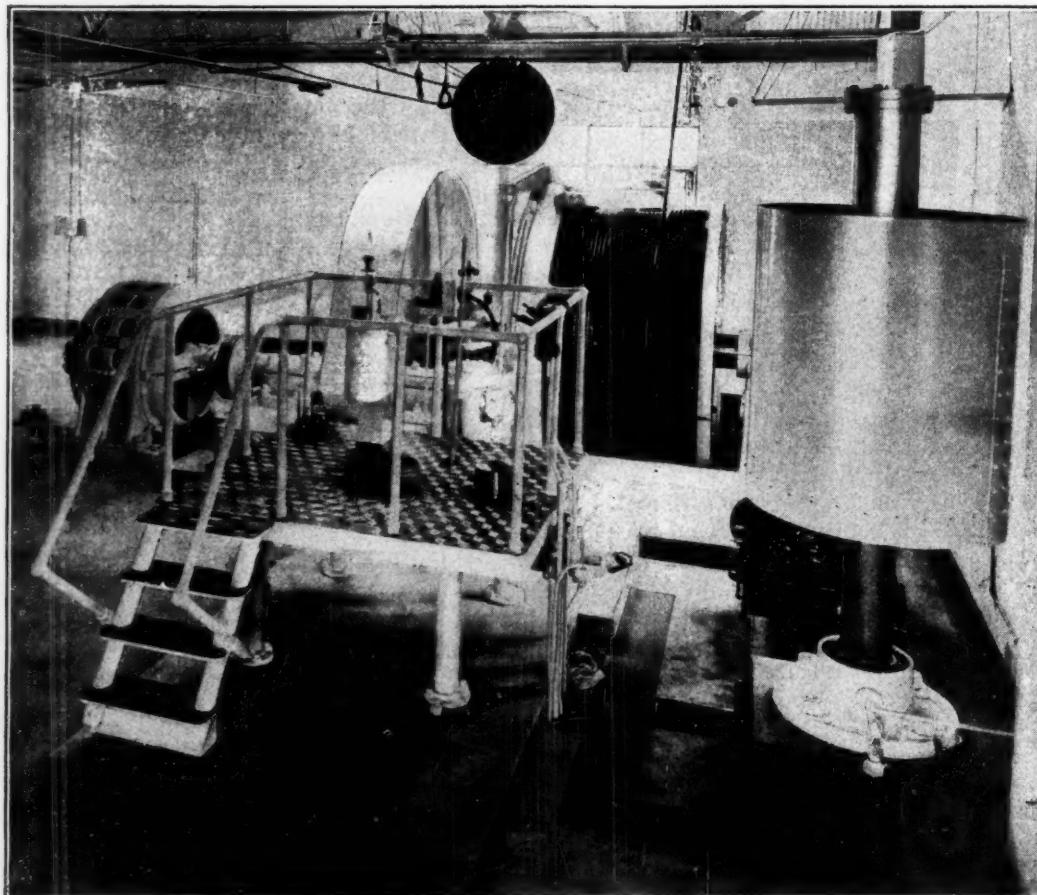
The hoist raises an output of 2,000 tons in eight hours.

At some future time it may be desirable to direct-connect a much larger motor to this hoist, thus speeding it up to accommodate a greater output. With this end in view the drum shaft has been provided with a flanged end. The drum is 8 ft. in diameter with a 48-in. face and carries machine-turned grooves for 1 $\frac{1}{2}$ -in. rope. One end of the drum is provided with a brake ring 9 ft. in diameter upon which operates a Nordberg parallel-motion post brake. This brake is applied by means of a dead weight and is released by a hydraulic thrust cylinder which is served by an accumulator of the loaded-plunger type. Oil is supplied to the accumulator by an electric pump, a duplicate machine being provided as a spare.

Thus the hoist is electrically self-contained and is in no way dependent upon air pressure for its operation. The hydraulic thrust cylinder for the brake is provided with balanced pop valves so constructed that it is impossible for both inlet and exhaust to open at the same time. These valves will be operated by a system of floating levers so arranged that the plunger of the thrust engine absolutely follows or obeys the motion on the operator's lever. Whenever this lever comes to rest the plunger also comes to rest and is securely locked in its position. In this way the hoistman has a control over the brakes as complete as if they were operated by hand.

The brake-thrust cylinder is provided with a solenoid-operated valve. During normal operation this solenoid is energized and the valve closed. In case of interruption to the current supply, however, the valve is opened and the brake thus applied.

A safety device will open the solenoid circuit and shut off power from the motor for any one of the following reasons:



**Petersburg
Coal Hoist**

Lifts 4-ton cars through a total lift of 430 ft. and affords an output of 2,000 tons in eight hours. It is a wholly electrical hoist and is in no way dependent on air pressure for its operation. An 8-ft. drum with 48-in. face carries machine-turned grooves for a 1 $\frac{1}{2}$ -in. rope. The hydraulic brake-thrust cylinder is provided with solenoid-operated valve. The solenoid, so long as it is energized, keeps the valve closed, but should the current be shut off the solenoid loses its energy and the valve is opened and the brake applied.

(1) In case the hoisting speed exceeds normal at any point. (2) In case the operator fails to slow down the hoist at any predetermined and adjustable point, or fails to continue retardation between this point and the landing level. (3) In case of overwind. (4) In case the operator fails to reverse the hoist after the skip or cage has reached the landing or limit of travel. (5) In case power goes off the line for any cause.

One of the drum-shaft bearings is built to receive end thrust, thus taking up any pressure that may be

exerted lengthwise on the shaft. All bearings are mounted on a bedplate of liberal size and of box section which entirely surrounds the hoist and the gear reduction.

This hoist is provided with a dial indicator driven by means of gearing from the drum shaft. An operator's platform is mounted in front of the machine. This is provided with hand railing and the control levers are placed upon it. The machine was built and installed by the Nordberg Manufacturing Co., of Milwaukee, Wis.

Hillsboro Wood Tipple Replaced by Steel While Shaft Is Hoisting Coal

A New and Complete Steel Tipple Was Constructed Over the Main Hoisting Shaft In, Through, and Around the Old Wooden Structure Without Interruption to Hoisting—This Required Much Scheming and a Resort to Many Expedients

BY JOHN A. GARCIA
Chicago, Ill.

UNUSUAL difficulties were encountered in the design and erection of a new steel tipple for the Hillsboro Coal Co., in Montgomery County, Ill., to meet which highly interesting methods were employed in both drafting room and field in order to determine and solve each problem before actual installation was begun. There is nothing of special interest in the design itself. The new tipple is merely an ordinary steel structure, equipped with pendulum-hung three-track shaker screen, weigh pan, picking table, loading boom and the like. The main job, however, was to lay out this structure and build it in conformity with field

conditions and the requirements of the operating company.

The Hillsboro Coal Co.'s mine is operating in the No. 6 bed, which is approximately 7 ft. thick and 500 ft. deep. At the time the new surface plant was constructed—in the winter of 1918-1919—the operation was producing about 1,500 tons per day. The mine is some thirty years old and the three-track wooden shaker-screen tipple to be replaced had been in service ever since the shaft was sunk. It had been braced and counterbraced during these years until it looked more like a pile of lumber or mine cribbing than a tipple.



FIG. 1.
Finished
Tipple

With the old structure removed and with a boiler-coal conveyor showing in the rear ground. This transfers screenings from the slack track to the boiler room. On the left may be seen the housing built over the picking tables and the projecting loft from which hang the loading-boom counterweights, all of which are brought together to this point—a new idea in counterweighing.



FIG. 2. OLD TIPPLE AND OFFSET SCREEN BUILDING
Fortunately the weigh pan discharged its contents in a direction parallel with the track, thus greatly assisting in the work of replacing the tipple. The cover of the chute by which the coal went to the screen house can be seen under the tipple building.

Rice Miller, general manager of the coal company, authorized the Allen & Garcia Co. to undertake the work of reconstruction in the autumn of 1918 with the positive and specific stipulation that the mine must be kept in operation throughout the entire building period and that this consideration was paramount to all others.

Examination of the site showed that the old structure was in imminent danger of collapse and could not be shored up or employed as a support for new steel because of the soft and yielding nature of the ground around the shaft. The surface landing was about 10 ft. above the railroad tracks and was retained by a crumbling wood and brick wall located between the first track and the shaft. The three loading tracks were so placed as to give about 18 in. of clearance between the cars, while the main line of the railroad was located just beyond the lump track with bare engine clearance.

This track layout presented a problem in itself, as all screening equipment and steel for its support and housing had to be spotted and put in position in this confined space during the time that cars were being dropped down from the loading chutes and the main line kept clear.

The old tower posts were from 4 to 6 in. out of plumb in two directions and could not be straightened to clear the new steel-tower columns. Fortunately the weigh pan of the old structure discharged at right angles to the center line of the shaker, and the coal flowed over a chute to the screens, which were located about 10 ft. uptrack. Thus the new shakers could be built on the center line of the hoisting shaft without interrupting the sizing of coal on the original screens.

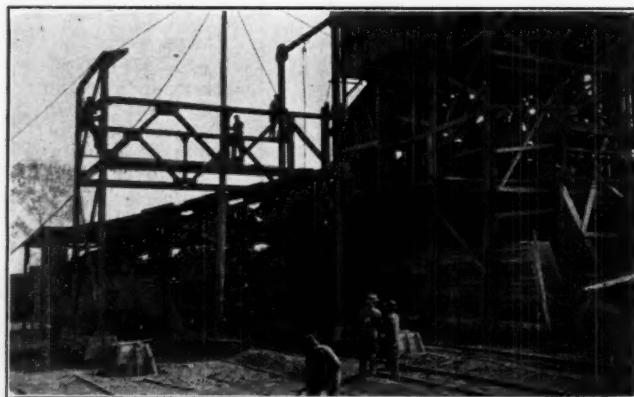


FIG. 3. SKELETON OF NEW SCREEN BUILDING
Particular attention should be drawn to the heavy wall along-side the track nearest the tipple. It is that marked "C" in Fig. 5 and is rightly regarded as the keystone of the structure.

The work was undertaken in the midst of the war, when skilled field labor and draftsmen were scarce, and all material had to be purchased under the rules of the War Industry Board and permits obtained from the Priority Committee. This resulted in much red tape and delay.

CARE TAKEN NOT TO DISTURB OLD STRUCTURE

Accurate measurements and elevations were taken upon the old structure and the ground in the vicinity of the shaft. Photographs of important points also were made to assist the designers. The old tipple was plotted to scale and the new structure designed so as to interfere with it as little as possible, especially at the more important points. Places of unavoidable interference were detailed, and the field crew was instructed to frame around them with timbers before cutting for clearance. In some cases the steel was detailed in such a manner that part of a member would clear the old structure and carry the load until the old framework was removed, when the balance would be riveted on.

Fig. 2 shows the general design of the structure with the outline of new machinery and also the main supporting members of the original wood tipple. Fig. 3 gives a fair idea of the confined space available for

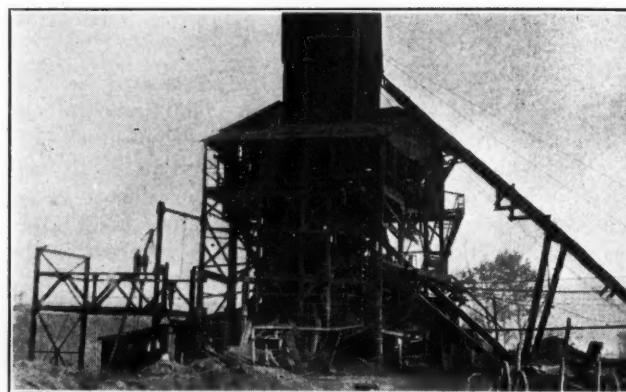


FIG. 4. SIDE VIEW OF THE OLD RICKETY TIPPLE
Some of the new construction can be seen, especially on the left, where the screen house is being built. The old tipple was 4 to 6 in. out of plumb in two directions.

construction purposes. It also shows the location of the old shaker structure uptrack from the center line of the shaft, which by its fortunate location permitted the new shaker to be built upon this center line while coal was being prepared over the old screen.

When the greater portion of the material had been delivered, the work of erection was placed in charge of H. B. Cooley, who was assisted by Otto Kerner and a crew of ten experienced men. Mr. Cooley selected points "A" and "C" as shown in Fig. 5 as initial places of attack on the theory that from these two fixed points he could work the steel up to point "B," completing a triangle on which to carry the hoisting load.

Pier A was easily built, as it was on solid ground and in the clear. Pier C required careful and painfully slow work, as the ground above the track level was loose, being retained by three old posts and some wood planking. The completed wall at C shown in Fig. 4, was built in short sections while the mine was operating. The crumbling ground was controlled meanwhile by short forepoles, cribbing and timber bracing. Fig. 6 shows a side view of the old tipple after the key piers were in and the structural steel for shaker supports were partly erected.

With piers A and C in place, the real job of steel erec-

tion began. Reference to Fig. 2 indicates the character of tower construction as designed to carry the hoisting load from *B* to *C*. The steel, from foundation to weigh-house floor, was placed with little difficulty except at several points of interference with the old structure, where framing-around was necessary. From the dumping point to the sheave deck, however, the columns of the old headframes were about 4 in. out of plumb. To meet this difficulty the vertical members of the upper portion of the tower had been built up of angles and plate so designed that a half section could carry the load with a fair safety factor. These columns were placed in this manner when necessary to clear the old posts. After the ropes were put upon the new sheaves and the timbers taken down the full section of columns was completed, but coal was hoisted for several days with only half-section columns.

BACK STAY BUILT WITH AID OF TIMBER BRACE

The lower chord of the engine brace was bolted to a gusset plate on the tower, as shown on Fig. 2. Its bottom end rested on pier *A*, a temporary timber brace being placed at its middle point. From this chord the entire lower portion of the engine brace was gradually

built up. This section was guyed with cables to prevent side swing and avoid trouble arising from vibration, communicated from the hoist while the balance of the steel was being added, one member at a time, up to the sheave deck, where connection was made with the steel that had been erected through the mass of wood timbers from pier *C*.

These two sections—the steel from pier *C* and that from pier *A*—were erected simultaneously by two gangs, the work being so regulated that both reached *B* about the same time. All the steel had been bolted in place and after the sheave deck beams were put in position all connections from the ground to point *B* were riveted up before the cables were lifted from the old sheaves and set on the new.

After the load was placed on the new structure the old tower was kept in service merely to carry the cage guides. A night shift gradually replaced these, working on a section at a time from the sheave deck to the ground. The thrust of the cages was transmitted through the steel framework to pier *C*, as shown in Fig. 5.

While the work on the tower was going on another gang was erecting the steel for the shaker-screen shed

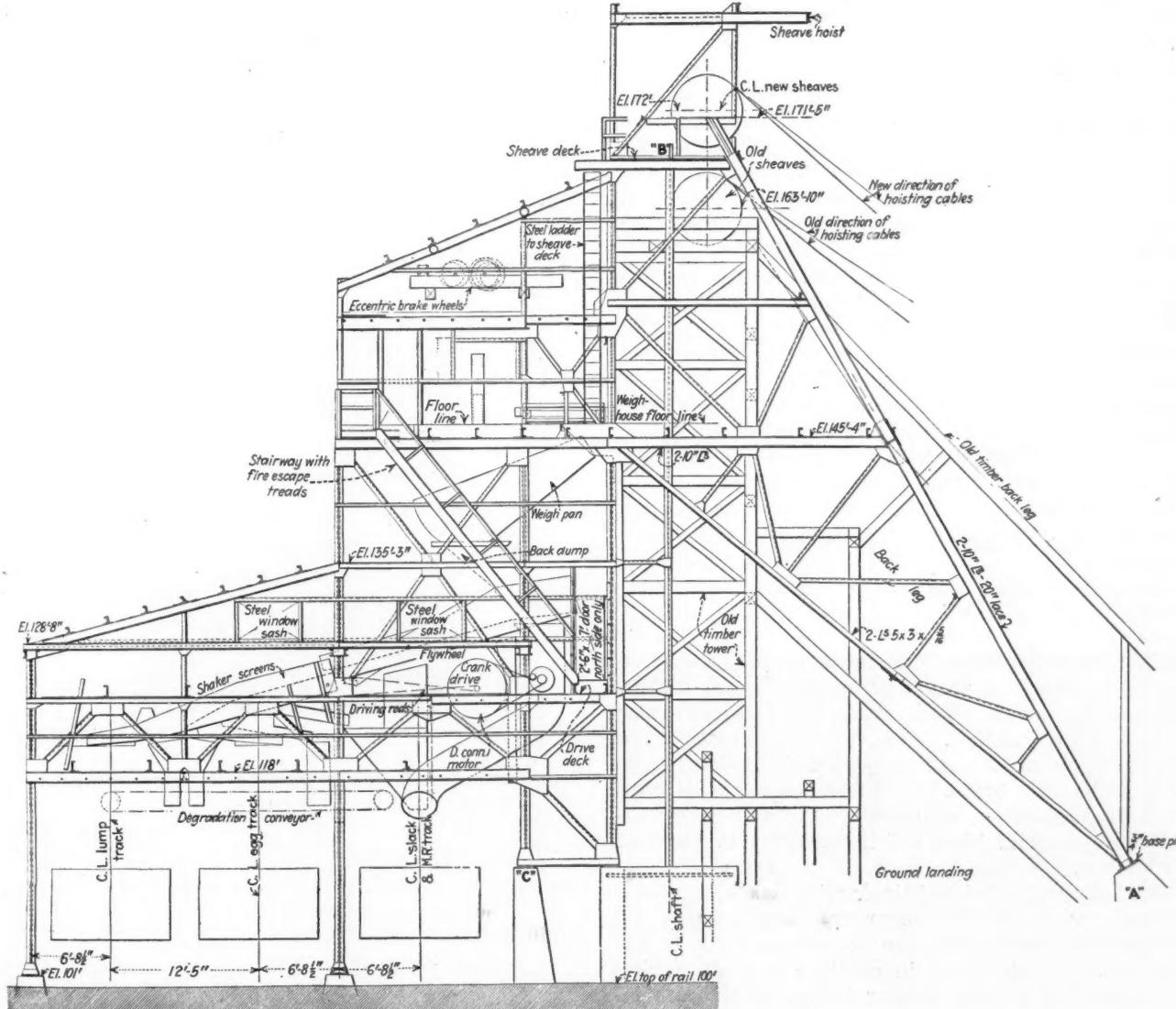


FIG. 5. ELEVATIONAL SECTION OF NEW AND OLD TIPPLES, SHOWING SCREEN-HOUSE DETAILS

Pier "A" was readily built in the solid ground so far beyond the old tipple that it could not disturb it, but pier "C," which was long and too close to the main structure

for erection, gave much trouble. The old tipple was on ground that stayed in place by grace of three old rotted posts and some wooden planking, and digging around them

was parlous work. However, once built, the skeleton "A," "B," "C," was erected upon it and upon the brace post "A," the rest of the tipple proper being added thereafter.

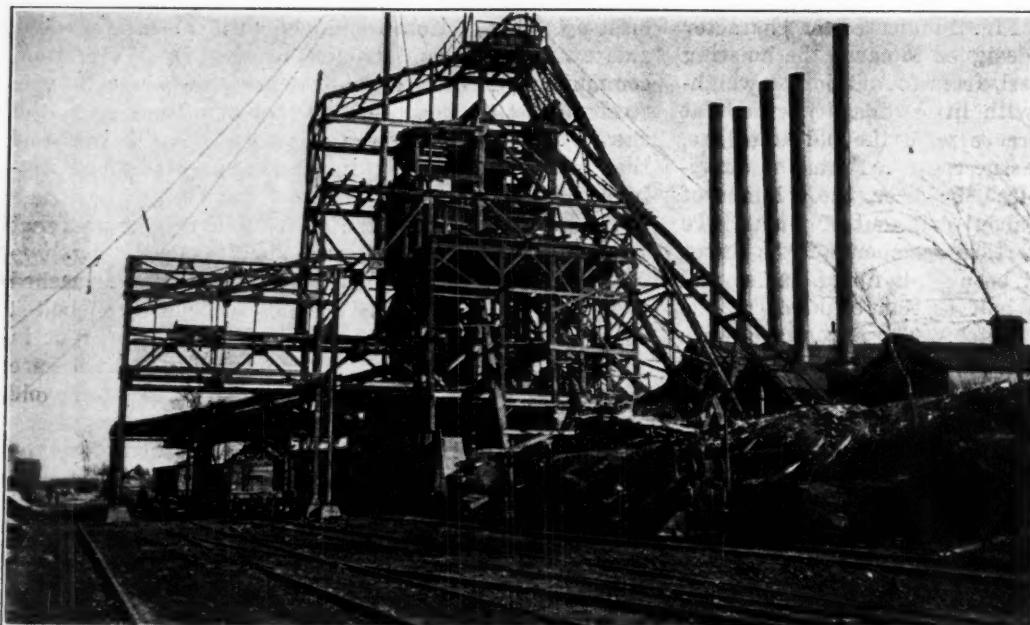


FIG. 6.

Steel Frame in Place

Much of the old structure still remained, to be dismantled during the night shifts. The old trestle sustained the cage guides, and the hoisting of coal continued. An idle day and a Sunday gave an opportunity to exchange weigh pans. The work was finished without a single personal injury or the loss of an hour's working opportunity.

and also placing the machinery. This latter was connected up with its drive and operated for several days as a test before the new weigh pan was swung into place and coal sent over the shakers.

In order to get the new weigh pan into position it was necessary to raise the cage dump irons to their permanent place and let the coal drop 7 or 8 ft. to the old weigh basket. This, however, lasted only about two shifts, when the new basket was swung into position and put in service. The change in dumping point and weigh pan could not be made while hoisting coal. Fortunately, however, the mine was idle on account of car shortage on the Saturday scheduled for this change, and the constructors were not charged with any delay.

The job of placing the crusher, loading booms, etc.; painting and covering the structure was more play than work after the nerve-straining experience of the tower erection. The entire job was completed in good shape without a single case of a personal injury and with no loss of time in hoisting charged to tipple construction.

The cost of the entire job, excluding picking tables, was as follows:

Equipment and material (steel, 207,198 lb.)	\$25,348
Field labor, superintendence, drawings, shop details and engineering	18,125
Excavation and concrete	1,313
Chargeable to wrecking the old tipple	674
New cages	1,850
Total	\$47,310

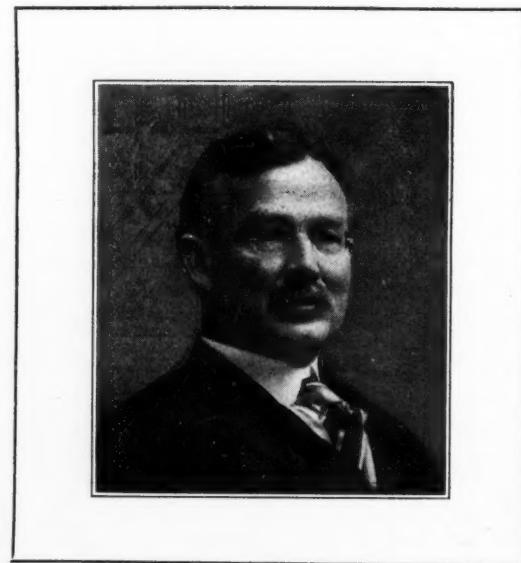
After the new tipple was completed and put into operation, excavation was made around the shaft curbing from the surface to rock (about 20 ft.) and a new concrete wall installed. To this the guides were fastened by means of steel brackets and the side framework of the steel tower bolted down to it. This completed the installation with the exception of the retail-coal conveyors and bins, which were put in place at a later date.

Fig. 1 shows the finished tipple with the old structure removed. Also, in the background may be seen the boiler-coal conveyor from the screenings track to the boiler room. This figure in addition presents a view of the housing for the picking tables, which were installed after the main job was completed. A new idea is here incorporated, namely, that of concentrating the loading-boom counterweights as shown in the foreground of this photograph.

Use of Peat Solves Railway Fuel Problem

CONSUL-GENERAL MURPHY at Stockholm reports that apparently the coal problem, so far as Sweden and the Swedish railways are concerned, has been satisfactorily solved by substituting peat for coal as fuel for locomotives.

Following long-continued tests, the Railway Board of Sweden has taken over a specially constructed plant at "Hasthagen" bog, near Vislanda. Here peat is reduced to powder or made into briquets. The plant, which cost 975,000 kroner (approximately \$231,000), has a capacity of 30,000 tons a year. Production on a large scale can be maintained with only a small working force.



JOHN M. HUMPHREY

President of the Lehigh Valley Coal Co. by election of the Board of Directors April 13. He has been affiliated with the company for thirty-one years. Born in Philadelphia, he was educated at the Philadelphia public schools and Lehigh University. His first employment was on the engineering corps of the Lehigh Valley Coal Co. Subsequently he became division engineer, and later mining engineer of the company. Six years ago he was appointed chief engineer. Mr. Humphrey now resides in Dorrancetown, Pa. When the Supreme Court confirmed the order for the separation of the coal and railroad companies, Mr. Humphrey was made a director of the Lehigh Valley Coal Co. As the directorate largely resides in Wilkes-Barre, it is hoped that before long the room prepared by F. M. Chase, Mr. Humphrey's predecessor, for meetings of the directors will be eventually used. Five out of six directors now reside in that city.

Substation at Cordova Mine Has Operated Two Years Without Attendant*

Automatic Substations Not Only Reduce Wage Costs but Also Perform Services That an Attendant Cannot Perform—Troubles That Cause a Shutdown May Be Automatically Signaled to Headquarters

FROM A PITTSBURGH CORRESPONDENT

SUBSTATIONS that do not require the services of an attendant may be said to have passed the experimental stage, and today can be accepted as being a necessary part of the equipment of a mine. Without them the most efficient results cannot be attained. Though only a few have been built, their number is steadily increasing and it would seem that the time is not far distant when the services of a substation attendant will as a rule no longer be required. This will be particularly the case at mines operating upon purchased power and at those plants where booster equipment is necessary underground.

Labor cost is the chief item in the maintenance of substations. This is practically eliminated by the automatic station. The average wage paid the substation attendant approximates perhaps \$150 a month. If it must be kept going day and night, as is the case where pumps are worked continuously or where cutting is done on the night shift, this figure must be doubled. Thus the services of a substation attendant cost the company nearly \$4,000 yearly.

This is a sum of appreciable proportions yet one that has heretofore been considered a necessary entry upon the payroll of every electrified mine. The time has not yet arrived when the power-plant attendants may seek employment in other lines of endeavor, but those now presiding over the machinery of the substation may be relieved of duty except, of course, for periodic visits when oil cups must be filled, the generating and control apparatus dusted off, the rooms swept out and the whole installation made generally shipshape.

*Graham Bright having written an article entitled "Nanty Glo Has First Coal-Mine Substation Equipped to Run Without Attendant" for our issue of April 7, a Pittsburgh correspondent was led to write this article, in which he declares that an automatic substation has been in use for two years. His remarks are printed entirely without prejudice as to the merits of the controversy.

Decreased labor cost, however, is not the only advantage to be gained from making a substation automatic. Such an installation holds no card in the United Mine Workers of America, and as a result when labor troubles beset a mine using purchased power the fan and pumps can be operated in much the same fashion as if the regular forces of the operation were on duty. Of course, if the mine generates its own power or distributes it from a central plant the various substations will be forced to suspend operations concurrently with the extinguishment of the fires under the boilers.

AUTOMATIC SUBSTATION RUNS FOR TWO YEARS

At the Cordova mine of the Mt. Carmel Coal Co., of Birmingham, Ala., located in the town of Cordova, a substation has been operated for nearly two years which requires no attendant. Power for the operation of the mine is purchased and delivered at 22,000 volts. After passing through outdoor transformers current becomes available for the station itself at 2,200 volts. For supplying operations underground with direct current a 100-kw. 275-volt generator is direct-connected to a 150-hp. 2,200-volt induction motor.

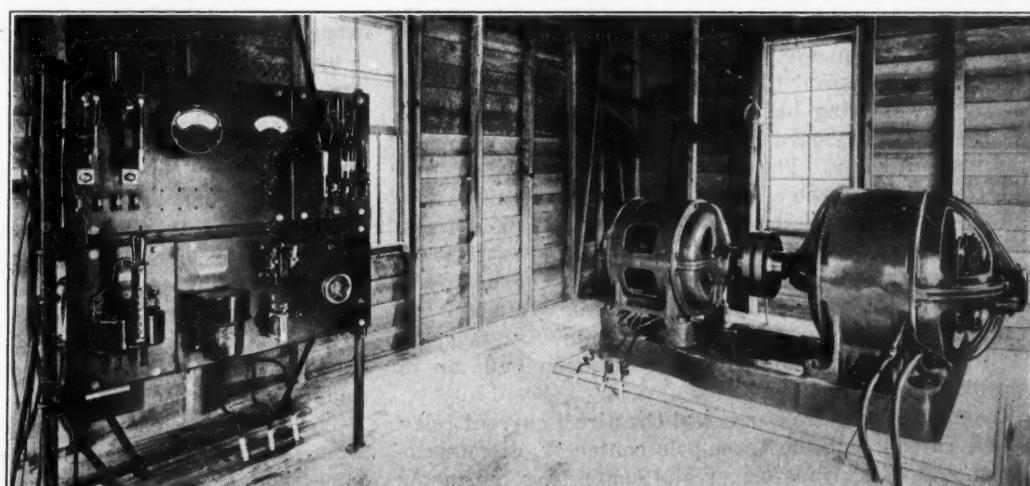
In this set the generator field is connected through a discharge resistance for starting. This calls for the installation of an additional relay on the switchboard for disconnecting this resistance and connecting the motor field to the generator after the machine is up to speed and is developing normal voltage. The only other electrical equipment within the building, as may be seen in one of the accompanying illustrations, is a self-operating panel switchboard. All the equipment here mentioned is housed in a frame building located on the surface.

With the exception of the automatic reclosing circuit breaker, all the control equipment on the switchboard

FIG. 1.

Automatic Substation

Cordova substation receives power from the lines of a public-service corporation at 22,000 volts which outdoor transformers step down to 2,200 volts, where it is converted into 275-volt direct-current.



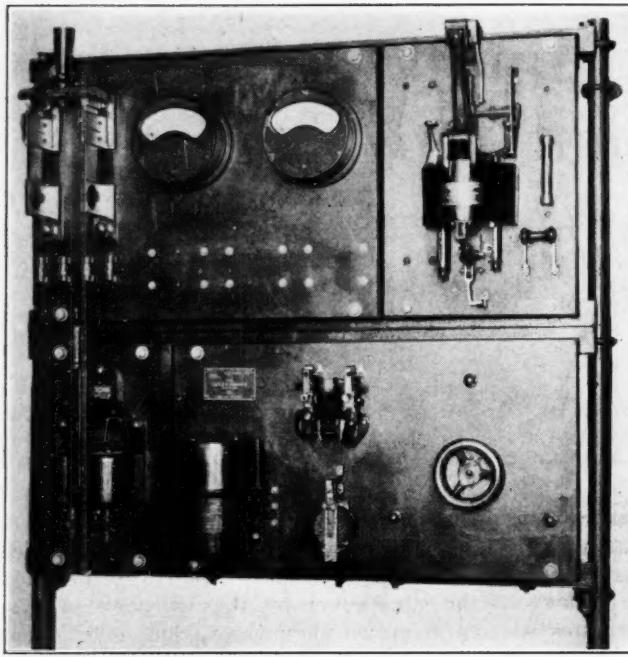


FIG. 2. FRONT OF AUTOMATIC SWITCHBOARD

One advantage of automatic devices is that, having to be actuated by the conditions which they must correct, they sometimes are able to discern what those conditions are better than an observer. The attendant at a substation will not even suspect phase failure till too late to correct it. The switchboard will scent it and recognize it before it has had time to do damage, and the switches will act accordingly.

was built by the Cutler-Hammer Manufacturing Co. The principal pieces of apparatus mounted upon the board are an oil circuit breaker equipped with overload release but without low-voltage release, a phase-failure and phase-reversal relay device, starting and running contactors; an alternating-current relay, two auto transformers (mounted separately), a two-pole main-line direct-current switch, a voltmeter, an ammeter, a field rheostat, a direct-current relay and an automatic reclosing circuit breaker.

MAY BE STARTED FROM ANY PLACE DESIRED

The equipment is placed in operation by an automatic starter connected to the starting contactor through push-button controls. These may be located at one or several points of vantage about the plant. Thus one may be placed at the shaft bottom, one in the superintendent's office, one in the power house, another in the mine electrician's office, and so on. As an alternate proposition the substation may be controlled by a clock if operations in the mine are not prosecuted during the night. In such a case the whole installation becomes truly automatic in every sense of the word.

When it is desired to put the station into operation one of the starting buttons is pressed, throwing high voltage onto the board at the oil breaker through the starting contactor. The alternating current relay flies into place, closing the circuit to the three-pole oil switch which is employed in starting the motor. If the voltage is sufficiently high and the phases are in correct relation this switch will immediately close and connect the starting transformer to the line and the motor to the transformer. The motor will now gradually accelerate until the direct current potential has been built up to approximately 220 volts.

When this pressure is reached the direct current relay closes, cutting out the three-pole contactor, disconnecting the starting transformer and connecting the motor

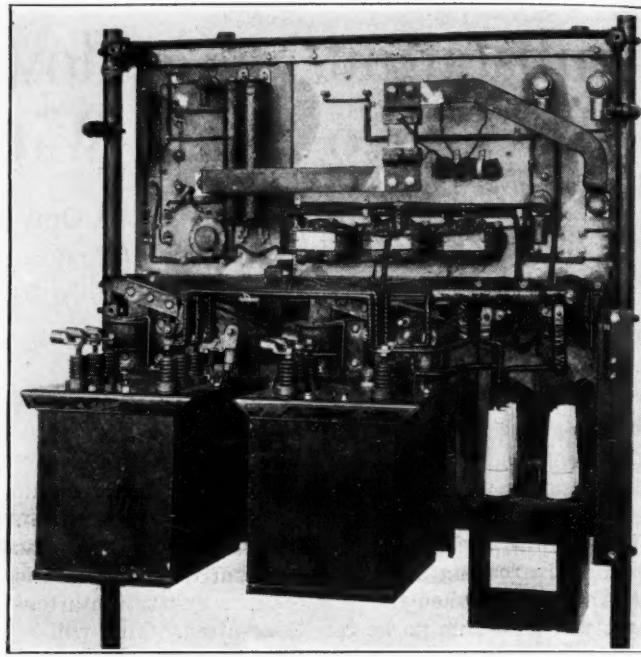


FIG. 3. REAR VIEW OF SAME SWITCHBOARD

The automatic devices on this board distinguish an overload from a "short" and act accordingly. After many attempts to close the circuit breaker the attendant of a non-automatic substation arrives at a conclusion which is possibly correct—that his line is short-circuited. He has no assurance, however, that he will not mistake a long-continued overloading for a short-circuit, and so may let the current be interrupted to no purpose.

directly across the line. An interlock is provided on the other three-pole contactor, which completes the circuit to the closing coil of the automatic reclosing circuit breaker. If conditions on the mine circuit are suited to operation—that is, if no overload and no short circuit is present—the breaker will close and energy be directed into the mine.

At this particular installation no protection from heating is provided on the motor bearings. At some similar automatic substations "bearing thermostats" are placed on the motor shaft. The use of these devices is advisable. One type frequently employed, built by the Cutler-Hammer company, is of the latched design. This embodies a small tube filled with a liquid which vaporizes at a low temperature. Surmounting the tube is a spring bellows. At the first indication of overheating of the bearing—that is, when the motor-shaft temperature rises more than 2 deg. above normal (192 deg. F.)—the liquid in the tube begins to vaporize, expanding the bellows and forcing its extremity upward. After a short movement has taken place pressure is brought to bear on the contactor and the control circuit is opened. The latch on the outside of the hood then flies up as an indicator and remains in this position until the trouble has been remedied, after which this lever may be reset by hand.

It might well be asked here why is not the machine automatically put back in operation as soon as the bearing has cooled to normal temperature? To permit a resumption of operation under such conditions would defeat the purpose for which the thermostat was installed, namely, to attract attention to the bearing that oil may be applied if the shaft is dry or that dust and sand may be removed if these foreign substances are causing undue friction.

The rising latch on the thermostat, denoting trouble from hot bearings, may be connected electrically with some remote signalling device. Thus a klaxon may be

sounded or a red light energized at some point outside the building calling attention not only to trouble but indicating its exact nature. In this manner those on the surface know immediately that the cause of the difficulty does not lie in a short circuit.

If signalling devices of a nature similar to those enumerated are not utilized the electrician will be able to determine immediately upon entering the building where the trouble is located and can telephone the foreman accordingly. If the transformers are humming he will know that the trouble is the result of phase failure or reversal. If the latch on the thermostat is in an upright position he realizes that the motor is down as the result of a hot bearing. If the circuit breaker is in the open position and the generating equipment is in operation he may be reasonably certain that a short circuit exists within the mine. Whatever may be the cause of the difficulty, he can read its sign upon entering the door.

CAN ATTEND MANY AUTOMATIC SUBSTATIONS

Where a series of installations such as this has been made at mines obtaining their power from one central plant it has been found advisable to detail a man as attendant for all such stations. This man should so arrange his time that he can visit each building at least once every three or four days. In this manner the buildings may be periodically swept out, the oil cups filled and the switchboard and generating machinery dusted off. A semi-weekly visit to each station should suffice. By assigning one attendant to all the buildings the mine electrician's time at each separate plant need not be taken up by details that can be adequately attended to by an inexperienced man.

The advantage of the automatic substation is not limited to its dispensing with an attendant. It has the further advantage that it does its work more efficiently. Electrical engineers agree that about 70 per cent of the burnouts of alternating-current motors are the direct result of phase failure, yet against this the substation attendant is not equipped. It is true that when he starts up a set he may detect the failure in phase by the fact that the machinery refuses to run; but, unfortunately, phase failure seldom asserts itself except during the operation of the motor.

Heretofore phase failure has been detectable only when the motor began to give off smoke and then the attendant did not know whether failure or reversal of phase or hot bearings were the seat of the trouble, as the machine behaves in the same manner no matter which of the three difficulties is registering itself. To shut down cannot remedy the mischief that has been already done.

Another peril to the substation is lightning. The underground attendant cannot tell that a severe electric storm is raging outside. If he did he might be disposed to shut down till it was over, provided the work of the substation could be delayed, as can pumping, for instance.

Furthermore, when the direct-current circuit breaker flies open in a manually-operated station the attendant closes it as soon as he sees or hears it do so or as soon as he happens to notice that it is in the non-contact position. If he happens to be engaged somewhere else in the room or sunning himself at the door at the time the breaker opens, then the mine current will be down until he notices that the breaker is out. In most cases the breaker is opened by an overload on the mine circuit, but the attendant has no means of knowing to a

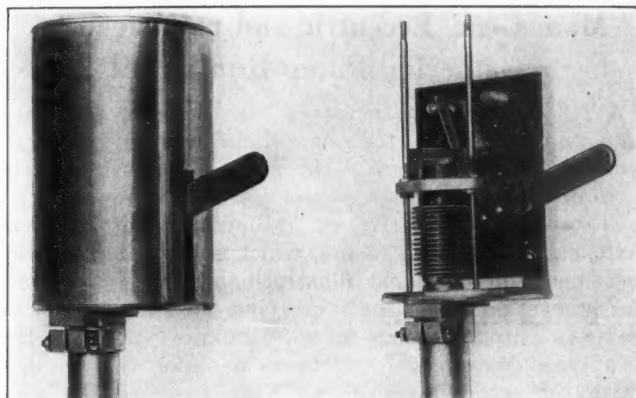


FIG. 4. TWO VIEWS OF BEARING THERMOSTAT

In the left-hand view the operating parts are shown hooded for protection against dust and dirt. The device is installed directly on the bearings of the motor shaft. At the slightest indication of overheating a liquid contained in the stem vaporizes, raising a piston which trips the contactor, shutting the current off. The device does not permit the motor to resume operations after the bearings have cooled, for the condition that its action indicates is a serious one and must be corrected before restarting.

certainty. He closes the switch and if it opens after each of several successive efforts to close it, he comes to the conclusion that the line has been short-circuited, though this may not be so at all. In the automatic substation the breaker remains open until the overload has been removed from the wires and then it recloses of its own accord, and, if a short circuit has caused it to fly open, it remains open until the mine circuit has again been made clear.

In case of a short circuit in a manually-operated station the attendant keeps trying to close the switch until, wearied with trying, he concludes that the line is short-circuited. It is a poor way of finding out whether the line is overloaded or shorted but it is the best method available to the attendant.

With the mine equipped with an automatic station, the foreman does not call up the substation to discover if the negligence of the attendant has allowed the circuit breaker to remain out. He is sure that something more serious than an overload has occurred, for otherwise the current would be established, so he telephones to the electrician on the surface to look for the "short" and sends other men to do the same.

In some of the stations now being equipped, a klaxon is attached to one of the window frames of the building. When the direct circuit breaker opens and stays open for a predetermined time, a dry-battery circuit is completed which causes the horn to operate, sending its shrill signal over the plant. The mine electrician knows at once that there is a short-circuit within the mine, as the klaxon will not operate when the breaker has been opened by an overload—unless indeed, that overload is maintained on the wires for nearly a half minute—and he telephones the foreman, who institutes a search at once.

When a short-circuit occurs in a mine without an automatic substation, the attendant may mistake it for an overload and he may try to throw in the circuit breaker without first pulling the alternating-current switch. This will damage the entire installation and may severely injure the attendant.

SOUTH AFRICA CLAIMS the largest single coal deposit in the world is being developed south of Victoria Falls, on the Zambezi River. Engineers say that this one mine will yield six trillion tons of soft coal. Present production is at the rate of 30,000 tons a month.

Main Gear, Eccentric and Crosshead of Gathering Pump Run in Oil

A NEW type of gathering pump has been developed and placed on the market in western Pennsylvania. In this design all bearings and moving parts are self-oiling and unusual accessibility is provided.

The back-geared drive, or, rather, that portion of it external to the drive casing, which may be seen in the accompanying sectional illustration, is not, of course, an innovation. The shaft carrying the first back gear extends through what in most pumps would be the crankcase, within which it bears a pinion that meshes with the second back gear. This gear, which is of close-grained cast iron, carries upon its side and cast integral with it a large eccentric, motion from which is transmitted to the crosshead and thence to the piston.

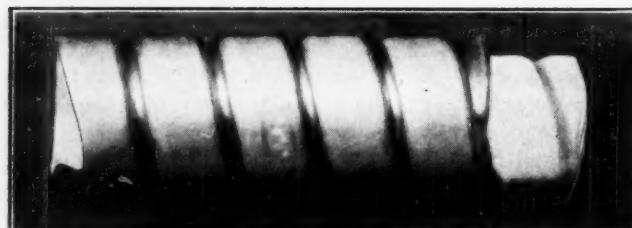
The crosshead is of the piston type and reciprocates within a bored guide. In shape and external appearance it strongly resembles the piston of an ordinary gasoline engine, except, of course, that packing rings are entirely lacking. The pinion, gear, eccentric, eccentric rod and crosshead are all inclosed within the gear case and guide barrel. The piston rod passes through a stuffing box which effectually prevents leakage of oil outward or of water inward.

"CRANK" CASE PARTLY FILLED WITH OIL

The "crank" case, which is provided with a hinged cover for purposes of access and inspection, is partly filled with oil. This is carried up by the gear to the pinion and thoroughly floods and lubricates not only the meshing teeth but also the gear and pinion bearings. Furthermore, oil thrown off by the pinion is directed through the cored passage, plainly visible in the cut, to the top of the crosshead. Here a groove around the crosshead effectually distributes it not only to the wristpin but also to the entire crosshead throughout its circumference. Suitable passages are provided which return the oil both from crosshead and bearings to the main reservoir. Thus not only are all wearing surfaces flooded with lubricant but this oil is used over and over again.

The cast-iron cylinder, which is of the overhung type, contains not only the piston barrel but the valve chamber also, these parts being cast integral. The piston is of cast iron fitted with square-braided flax packing and a follower plate. It is reciprocated within a cast-bronze cylinder bushing by a bronze piston rod which passes through an outside-packed stuffing box.

Suction and discharge valves are of rubber working upon bronze grid seats that are screwed into their respective decks. Access to either valve chamber is



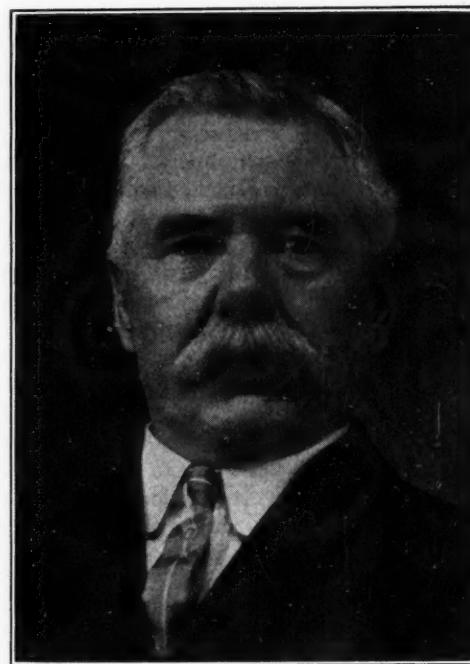
PUMP FOR VOIDING WATER FROM SMALL SUMPS

Reciprocating motion is imparted by an eccentric and the crosshead is cylindrical. Both of these parts are incased like the cranks of an automobile and similarly run in oil. The case also houses the main gear and the pinion meshing with it. A passage from the pinion to the crosshead carries the oil from the former to the latter.

gained by the removal of a single nut and crab which hold down the valve covers. Standard construction includes an air chamber and companion pipe flanges.

Another pump of the same type is built for belt drive. It is provided with tight and loose pulleys in place of the motor and first back gear. In either case the entire machine is mounted upon a substantial bedplate, which in the case of the electric drive, of course, carries the motor also. This bedplate may be mounted on wheels if desired.

In general this pump is of heavy design throughout. All rubbing surfaces are of generous dimensions and bearings not flooded from the crankcase reservoir are made self-oiling with renewable shells. All external moving parts are carefully guarded to prevent accident. The builder of the pump, the Deming Co. of Salem, Ohio, has endeavored to make it durable, reliable and easy of access.



THOMAS P. THOMAS

New general manager of the Lehigh Valley Coal Co. has been forty-five years an employee of the Lehigh Valley Coal Co. He was born in Wales, where his father was a miner. At the age of ten he entered the mines, being a door tender in a Pittston mine. He filled various humble duties until reaching twenty-one years of age. His parents being too poor to send the boy to school, he had to study in the evenings on his return from work in the mines.

By the time he became of age he had saved up enough money to go to the academy of Bucknell University. From that he went to Lehigh and studied mining engineering for three years with the class of 1886. He returned to the Lehigh Valley Coal Co. about 1885 and was assigned to work with the engineer corps, in which he remained for several years. He was promoted in 1890 to the position of general superintendent of the Enterprise Colliery at Plains, a mine long since abandoned. The year following he became outside foreman at Exeter colliery, where he had worked as a boy.

In 1894 he became foreman of the colliery. In 1901 he became superintendent of the company's Lackawanna division and four years later was transferred to the superintendency of the Hazleton division. In 1907 he became superintendent of the Wyoming division, and in 1912 mining superintendent over all the Lehigh Valley collieries.



Problems of Operating Men

Edited by
James T. Beard



Mine Inspectors' Difficulties

Large Territories, Great Responsibilities and Considerable Percentage of Tricky Mine Foremen Constitute Some of the Many Difficulties That Surround the Work of the Mine Inspector

MORE than once when reading *Coal Age* I have been reminded of the great responsibilities that rest on our mine inspectors. These men are placed under bond to insure the proper performance of their duties, which are varied and numerous.

Every mine inspector is required by law to visit each mine in his district once every three or four months, which he often finds it a practical impossibility to do and, at the same time, perform the other duties that the law requires of him.

What makes the inspector's work more difficult and requires him to be shrewd and cautious is the well known fact that, we might say, seven out of every ten mine foremen watch for the inspector's coming and prepare for that event. Occasionally, an inspector will drop in at a time the foreman is not looking for him; but this only happens when the inspector has reason to believe that his presence in that mine is needed.

SOME FOREMEN FREQUENTLY TRY TO HOODWINK THE INSPECTOR

When a foreman is working one or more places that he knows do not fully comply with the requirements of the law and yet he is anxious to keep such places going for his own purposes, he is quite apt when the time arrives for the inspector to make another visit, to withdraw the men working those places and put them to work elsewhere, temporarily.

The over-anxious foreman is seldom at a loss to tell the inspector why such and such a place "is not working" and, unless the inspector is well on to his job, he will generally accept the statement of the foreman as a fact and pass on to places that the foreman is very desirous he should "examine closely." The actual intent on the part of the foreman, however, is to get the inspector away to a portion of the mine where he will find everything all right.

How is it possible to reduce the number of accidents occurring in our mines daily when a large proportion of the foremen will resort to tricks of this kind, hoping to hoodwink the inspector and believing that their employers will be well pleased if they are able to do this?

From my own experience and that of many other foremen, I have no hesi-

tancy in saying that it is possible for the foreman of a mine to conduct the work of which he has charge, in a manner that he will never feel anxious about the coming of the mine inspector. In nine cases out of ten, a foreman who will deceive the inspector will play the same trick on his employer, whenever he is able to cover up his tracks and avoid the results that he very naturally fears will follow the discovery of his misdoings.

NIGHT SCHOOLS NEEDED TO INSURE COMPETENCY

Speaking of certified mine foremen, it is my belief that if these men were compelled to take the examination over again, not forty per cent of them would pass. It would seem that a portion of the work that falls to mine inspectors is to get the foremen in their several districts together, for a meeting once a month or so, that they may become familiar with their views and methods regarding safety in the mines.

Mention was made in *Coal Age*, a short time ago (Jan. 27, p. 187), of a district mine inspector, in Pennsylvania, who realized the need of greater competency on the part of the foremen in his district and organized a night school for all who would attend.

While it is true that accidents often result from a superintendent pushing his foremen too much and urging them to get out more coal, regardless of certain things that pertain to safety, it happens more often that the cause of these accidents are due to the laziness of many foremen.

MANY FOREMEN RELY TOO MUCH ON THEIR ASSISTANTS

In large mines it frequently happens that the foreman relies too much on his assistants and firebosses, and does not give the same personal supervision to the work that he should as foreman. In that case, if anything happens the blame of course, falls on the foreman for his neglect.

It has been rightly said that to avoid accidents, greater discipline is needed. This applies all down the line from the inspector to the superintendent, mine foremen, assistant foremen, and bosses in charge. Every superintendent should go through the mine with his foreman once or twice a week, that he may know

what is being done. This is as important as it is for the mine inspector to make his regular visits as required by law.

JOHN H. WILEY.

Olyphant, Pa.

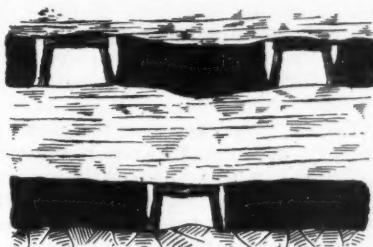
Working Contiguous Coal Seams

Numerous letters indorse the statement that the only safe method to adopt in the working of two seams of coal separated by a few feet of strata is to provide a continuous line of support by placing pillars over pillars in the two seams.

REFERRING to the inquiry of J. C. R. Taylor, *Coal Age*, March 10, p. 455, regarding the working of two seams of coal separated by 40 ft. of hard slate and shale, I agree fully with the idea expressed by the editor in his reply that the pillars in the upper seam must stand vertically over those in the lower seam.

It is hard to understand how any other plan could be contemplated. To my mind, should a pillar in the upper bed stand over a chamber in the lower bed the effect would be the same as when a wedge is driven over the center of a collar or crossbar of a set of timbers.

In the accompanying figure, I have attempted to illustrate what would take



PILLAR UNSUPPORTED CRUSHES TIMBERS IN SEAM BELOW

place where a pillar overlies an opening below. My sketch shows an entry pillar standing directly above a heading driven in the lower seam. Assuming there is any considerable roof pressure in the upper seam the strata intervening between the two seams will yield and break the timbers below.

The effect is bad enough in the case of headings where the cost of maintaining the roads and airways will be much increased, but the trouble will be far greater in the rooms where caving will result, causing a great loss of coal and making it impossible to draw the pillars, which will be badly crushed.

Some years ago while working both the "Checker beds" in the Pittston dis-

trict, I remember a very bad squeeze occurred and the roof collapsed over a large territory. Previous to the accident I had noticed that some of the pillars in the upper seam, while not set entirely over the chambers below, yet overlapped the pillar supports in the lower seam, at times as much as 12 ft.

Watching these pillars closely, from time to time, I made up my mind that they would eventually keel over into the chambers below, which was actually what took place in the collapse. In that case, the intervening strata ranged from 14 to 30 ft. in thickness, the rock being a hard sandstone.

In another section of the mine, however, we adopted the plan of leaving every eighth chamber to be mined at some time later. This provided a safety pillar of solid coal some 60 ft. in width and prevented further trouble. Allow me to say that the same plan can probably be used in the case mentioned in this inquiry.

Wilkes-Barre, Pa. Engineer.

ANOTHER LETTER

SPEAKING of working two seams with only 40 ft. of rock between them, my understanding has always been that the pillars in both seams should lie in the same vertical plane, one above the other, in order to have a solid line of support from the floor of the lower seam to the roof of the upper one. It would be interesting to know what argument could be advanced in support of any other plan.

The upkeep of mines is the first consideration. The cost varies from a comparative trifle to hundreds of dollars a day, whenever proper attention is not given to the study of the local conditions and the work laid out in a manner that will prevent trouble, later, in the development and operation of the mine.

While a large force of daymen is necessary in order to keep a mine in good repair where the conditions are unfavorable, this may often be required, also, under favorable conditions, because of the injudicious planning of the mine.

SUDDEN DEVELOPMENT OF CREEP BRINGS DISASTER

Those who have had experience with mine creeps will agree with me that everything may be working to satisfaction and the daily output of the mine growing when the miners are permitted to widen out their rooms and are taking too much of the pillar coal that should be left for the support of their rooms. Then, suddenly there comes a change.

Almost without warning the mine starts to creep. Coal falls from the pillars in slabs; the roof weights; timbers are broken and rock falls block the roads and many of the working places are rendered unsafe for work. As a result the daily output of the mine drops off and the cost-sheet begins to loom alarmingly.

Where formerly a large number of miners were at work and few daymen were employed to keep up the roads and timber the places, now a comparatively few miners are sending out coal and a large force of daymen are busy keeping the roads open and setting timber to counteract the effects of the squeeze.

Formerly, the men were mining cheap coal and drawing good money, which pleased the management whose eyes were blind to what was to come. Now, all their thoughts and energies are concentrated on keeping the mine open. There is little doing on the tipple and the small amount of coal sent out of the mine each day is mined at a high cost.

RESULTS OF BAD MANAGEMENT

Someone has blundered; but, as is invariably the case, many must suffer as a result. The miners lose their wages and the company's profits are cut off by the increased cost of day-work made necessary by reason of the squeeze.

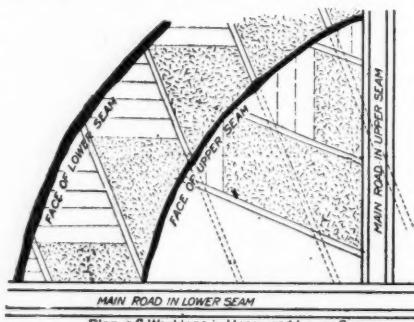
Allow me to remark, here, that anything done, or practice followed, in a mine that tends to produce creep or squeeze is not only a serious mistake but a crime. While it is possible to work continuous seams at one and the same time, without damage to each other, provided the seams are separated by a sufficient thickness and strength of strata, when this dividing rock is but 40 ft. in thickness, careful arrangement of the workings is necessary to avoid trouble. Nothing else will prevent disaster.

STEPHEN DAVIES.

Midlandvale, Alta., Canada.

THIRD LETTER

MY ATTENTION was recently arrested, in looking over *Coal Age*, by observing the inquiry in regard to work two coal seams, 40 ft. apart. The suggestion had been made



ENTRIES DRIVEN AT AN ANGLE
IN THE TWO SEAMS

to the inquirer that the pillars in the upper seam should stand over the openings in the lower seam. I wondered how such an idea could be held by anyone.

Of course, my preference is to drive all entries, rooms, and other openings in an upper seam directly over those in the seam below, so that all pillars will stand over and be supported by similar pillars in the lower seam.

However, another plan that has been advocated, at times, and has some promise of success under favorable conditions, is to drive the workings in the two seams at a considerable angle, say 45 deg., with each other, as indicated in the accompanying figure, which shows a long wall development on this plan, but can refer equally to a room-and-pillar development.

When working on the room-and-pillar system I would turn the rooms, in the lower seam, on 80- or 90-ft. centers and drive them up not exceeding 6 yards in width. This will provide pillars from 60 to 70 ft. wide and furnish a good support for the pillars in the upper seam.

When the pillars in the upper seam are vertically above those in the seam below, there is provided a continuous line of support that extends unbroken through both seams. Since the weight of the overburden acts vertically downward, it stands to reason that the pressure it exerts must be transmitted, without a break, to a solid foundation, which is the floor of the lower seam.

When drawing the pillars those in the upper seam should be taken out first before disturbing the pillars below. It is easy to understand that should the pillars in the lower seam be extracted first, the resulting cave would extend to the upper seam and the pillars in that seam would be lost beyond recovery.

WILLIAM DICKINSON.

Whipple, W. Va.

FOURTH LETTER

REGARDING the working of the two seams of coal mentioned by J. C. R. Taylor, in a recent issue of *Coal Age*, and which he says are separated by only 40 ft. of slate and shale, I can say from my own experience that the only safe and practical method to adopt in the development of these seams is that recommended in the reply to this inquiry.

In my opinion there must be provided a direct line of support extending through both seams. In order to do this it is absolutely necessary to drive the main and cross-entries on the same bearing in both seams and in the same position vertically.

PILLARS MUST STAND OVER PILLARS, ROOMS OVER ROOMS

For example, if the main entries are driven due north in the lower seam, those in the upper seam should be directly over them and driven in the same direction. Also, the cross-entries should be turned at the same points and driven east and west in both seams. In addition, the rooms should be turned off the cross-entries at the same distances, so that each room above will lie directly over one in the seam below.

If the work is well laid out by good engineers, in this manner, each pillar in the upper seam will stand directly over one in the lower seam. Let me say, here, that it is well to make the lower pillars somewhat wider and the rooms narrower in the lower seam

than those in the seam above, as that will give a greater protection against creep or squeeze, which may often occur under the best management.

In closing, may I suggest that it is well to build cribs at numerous points in the lower seam when the roof shows any tendency to cave, as that would give no end of trouble in contending with surface water and gas escaping from the strata. OSCAR H. JAMES.

Crawford, Tenn.

Fireboss' Warning Unheeded

Accident narrowly averted by quick action on the part of a watchful fireboss when an assistant foreman failed to listen to his advice to timber a roadway where the roof was ready to fall.

SOME time ago, I remember there appeared in *Coal Age* (Vol. 18, p. 943) an article entitled "Give The Fireboss a Fair Chance and You Will Get a Far Safer Mine," which I read with deep interest at the time.

Making the mine safer is again referred to in an excellent manner by James Ashworth, in the issue, Apr. 21, p. 716. But let me say that the question of making a mine safe naturally depends to a large extent on the faithfulness and intelligence of the fireboss and on his ability to act with decision.

How often it happens that firebosses know of dangers that exist in their section of the mine and which should receive immediate attention. But after reporting the condition, as they should and urging immediate action they are afraid to do more. Many a fireboss prefers to run the risk of the safety of the men in his charge rather than stand a chance of losing his job.

An instance occurred in my own experience as fireboss some years ago. In the section of the mine of which I had charge there was an entry where the roof was cutting badly on each rib, as I have shown in the sketch. On the morning in question I examined this condition carefully and found that, for a length of 60 ft., the roof was nearly ready to drop.

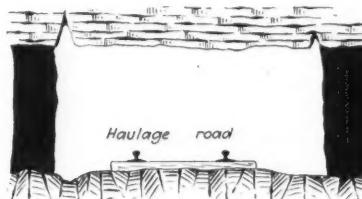
Having finished my second examination that morning, I sought the assistant foreman who had charge in that section of the mine and informed him of the condition of the entry, stating that unless immediate steps were taken to make the place safe, something was going to drop. His only reply was, "Let her drop," and he went off, giving me no satisfaction.

Realizing my own responsibility in the matter, I at once withdrew the men working in that section, including the drivers, and fenced off the place as a warning for all persons to keep out. This, of course, was the signal for trouble. The assistant foreman, ascertaining from the men going home that they had been "ordered out by the fireboss," reported the matter promptly to the foreman.

Now, it so happened that the foreman was with the inspector who was making his regular visit to the mine that morn-

ing and I met the three men coming in, as I was proceeding on my way to the bottom. I was only too glad to comply with their request to return with them to investigate the condition and decide what had to be done to make the place safe.

We stopped on the way to look at one or two places but finally reached the section that I had fenced off. What



ROOF CUTTING BADLY ON EACH RIB

we found there was a surprise even to myself. In the short interval of one hour and ten minutes from the time I had reported the danger to the assistant foreman the roof had fallen to a height varying from 8 to 12 ft., over a length of 115 ft. in that entry.

My gratification can well be imagined when I reflected what might have been

the result had I failed to act so precipitously in withdrawing the men. There was not much to be said in condemnation of my action, which received the hearty approval and praise of the mine inspector.

This little instance is told here simply to show the importance of a fireboss acting promptly when he knows that danger exists. It will happen at times that a giddy-headed assistant foreman, anxious to show his own importance, will regard any advice given by the fireboss as unworthy of his notice and will even delay the work suggested to impress the fact on the mind of the fireboss that his interference is not desired.

In the present case the mine foreman and his assistant had much the same disposition. Every night they could be seen drinking together. While I was at that time a drinking man myself, I was not the foreman's right-hand man. I often contrasted conditions such as these with the rank and file of the H. C. Frick Co.'s men, where the company inspector, foreman, assistant foreman and firebosses all co-operated in the work of "making the mines safer."

Olyphant, Pa. JOHN H. WILEY.

Inquiries Of General Interest

Water-Gage Reading re Speed of Fan

Water-Gage Reading Varies With the Mine Resistance and Is Independent of the Speed of the Ventilator. Short-Circuiting the Air Current Ordinarily Reduces the Gage Reading

ONE question has puzzled me for some time past. It has reference to the water-gage reading taken on a fan drift. I have always supposed that, in order to increase or decrease the reading of the gage, it was necessary to likewise increase or decrease the speed of the fan. Observations taken recently, however, seem to show that when the fan is running at the same speed, it is possible to get different readings of the water-gage. I shall much appreciate seeing this explained in *Coal Age*. STUDENT.

—, Pa.

The reading of a water gage placed on the fan drift is an index of the unit pressure creating the circulation of air through the mine or airway. This unit pressure (lb. per sq.ft.) multiplied by the sectional area of the fan drift (sq.ft.) gives the total pressure producing the circulation and is equal to the resistance of the mine or airway.

It is a mistake, often made, to suppose that the pressure created by the action of a fan depends on the speed at which the fan is running. This is not the case, as the pressure may vary from a maximum to zero, while the

speed of the fan remains constant, according as there is a greater or less resistance to the passage of the air current.

The pressure, as indicated by the reading of the water gage, is due to the mine resistance and varies in the same proportion. Cutting out the mine resistance or any portion of it, by short-circuiting the air current, will reduce the reading of the water gage if the speed of the fan remains constant. Likewise, increasing the resistance of the mine or airway, by obstructing the flow of the air or otherwise, will increase the gage reading for the same speed of the fan.

Less power is required to circulate a given volume of air under a reduced water gage; and this is accomplished, practically, by cleaning up the airways, removing all falls and other obstructions to the flow of the air, shortening the distance the air must travel and reducing the velocity of the air current by splitting or dividing the air one or more times. Each of these performances reduces both the mine resistance and the water gage and permits the circulation of the same volume of air with less power.

Examination Questions Answered

Examination, Foreman and Assistant Foreman, Twenty-Second Anthracite District

(Selected Questions)

QUESTION—*For what do the Anthracite Mine Laws of Pennsylvania generally provide and to what do they apply?*

ANSWER—The aim and purpose of these laws is to provide for the health and safety of persons employed in and about the mines and secure, as far as possible, the protection and preservation of the property. These laws apply to the mines, buildings and all equipment of tools, machinery and other appliances used in connection therewith, whenever the mine employs more than ten men.

QUESTION—*What is required by the mine laws of Pennsylvania to make a person eligible for the position of mine foreman and assistant mine foreman?*

ANSWER—A person to be eligible, under the law for these positions must be registered as holding a certificate of qualification or service under the Act; or have, in the judgment of his employer, qualifications that make him equally competent with a certified person. In order to obtain a certificate of qualification, the candidate must pass an examination before a duly appointed examining board and give satisfactory evidence of having had at least five years practical experience as a miner and have, besides, a reputation for good conduct, capability and sobriety.

QUESTION—*How and in what quantities shall the ventilating currents be conducted and circulated in a mine?*

ANSWER—All ventilating currents shall be conducted to and circulated along the face of each and every working place in the mine. The quantity of air in circulation, as specified in the law, must not be less than 200 cu.ft. per min. for each and every person employed in the mine, and as much more as the circumstances may require. The quantity must be sufficient to dilute, render harmless and sweep away the smoke and noxious or dangerous gases to such extent as to make all working places and traveling roads safe.

QUESTION—*What do you mean by the sectional area of an airway?*

ANSWER—The sectional area of an airway is the area of its average cross-section inside the timbers or other obstruction and is expressed in square feet.

QUESTION—*What is the rubbing surface in a circular shaft 15 ft. in diameter and 1,200 ft. deep?*

ANSWER—The perimeter of this airway is $3.1416 \times 15 = 47.124$ ft.; and

its rubbing surface is $1,200 \times 47.124 = 56,548.8$ sq.ft.

QUESTION—*What is the ventilating pressure, in pounds per square foot, when the water gage reads 24 in.?*

ANSWER—The unit pressure corresponding to a water gage of 2.4 in. is $5.2 \times 2.4 = 12.48$ lb. per sq.ft.

QUESTION—*With the same power how can you increase the ventilation in the mine?*

ANSWER—First, clean up the airways, removing all roof falls and other obstructions to the flow of the air. Having done this, shorten the course of air travel, wherever this is practicable, by conducting the air or a portion of it by a shorter route between adjoining sections on the same split. Also, cut out sharp turns in the airways where this can be done at small expense. Enlarge all crosscuts and breakthroughs where the air must pass and keep these clear of obstruction. Finally, wherever practicable divide the air into separate splits so as to reduce the velocity and decrease the resistance of the mine.

QUESTION—*What is the requirement of the mine law, in case it is found impracticable to keep the mine free from accumulations of water and gas?*

ANSWER—The anthracite law (Art. 10, sec. 5) requires that the mine inspector must be immediately notified when it is found impracticable to keep the entire mine free from such accumulations.

QUESTION—*There is passing through an airway 35,000 cu. ft. of air per min.; what will be the velocity per second if the size of the airway is 7.5 x 5.5 ft.?*

ANSWER—The sectional area of this airway is $7.5 \times 5.5 = 41.25$ sq.ft. The quantity of air in circulation is $35,000 \div 60 = 583\frac{1}{3}$ cu.ft. per sec.; and the velocity of the air current is then $583\frac{1}{3} \div 41.25 = 14.14$ ft. per sec.

QUESTION—*In a mine that is being worked with open lights, describe what conditions may be encountered that would necessitate the use of safety lamps.*

ANSWER—An increased outflow of gas that would necessitate the use of safety lamps may arise from striking fresh gas feeders in the development of a section of the mine. A heavy roof fall in one section may release an unusual quantity of gas from the roof; or a fall of roof in large abandoned areas may drive out the gas accumulated in such places. It often happens that a squeeze or creep will cause a sudden increase in the volume of gas

generated in a mine; or when passing through a fault there is frequently observed an increased generation of gas from the strata beyond the fault. In a mine having large abandoned areas that are not sufficiently ventilated, a sudden fall of barometric pressure will be accompanied by an outflow of gas into the live workings that would be unsafe where open lights are in use. Safety lamps should always be used when drawing pillars in a mine where the gas comes from the roof.

QUESTION—*Write a report such as you would do after making an examination of a gaseous section of a mine, assuming you are the fireboss of said section.*

ANSWER—Having completed the examination of the section of mine in my charge and on reaching the bottom of the shaft, I would enter the following report in the book kept for that purpose:

"I have this day examined all the working places, traveling ways, roads and air-courses in my section, and found the same to be free from gas and safe for work except at the face of Room 10, 3E—S, where I have marked a bad stone to be taken down, and placed a danger signal at the entrance of the room. I have withheld check No. 10 till said place is made safe for work.

Signed JOHN SMITH,
Fireboss.

QUESTION—*In which part of the workings of a mine is the greatest pressure required for the removal of firedamp?*

ANSWER—A firedamp mixture, being lighter than air of the same temperature and pressure, is prone to accumulate at the face of steep pitches and in rise workings, from which it is often difficult to be removed. A much greater pressure is then required than when the gas is generated at the face of dip workings, from which it has a natural tendency to rise and escape.

QUESTION—*What is the pressure per square foot and per square inch at the bottom of a water column that is 12 ft. above the bottom of a shaft 600 ft. deep, and which discharges 20 ft. below the top of the shaft?*

ANSWER—The total length of this water column is $600 - (12 + 20) = 568$ ft. The static pressure due to this head of water is $568 \times 0.434 = 246.5$ lb. per sq.in.; or $144 \times 246.5 = 35,496$ lb. per sq.ft.

QUESTION—*By what means is a ventilating current set in motion?*

ANSWER—It is a principle of ventilation that air always moves from a point of higher pressure toward a point of lower pressure. This difference of pressure may be due to a natural air column in a shaft, or in rise or dip workings, or it may be caused by the heat of a furnace at the bottom of a furnace shaft, or created mechanically by means of a steam jet or a ventilating fan. Wind cowls and waterfalls in a shaft have been utilized to create air currents where the conditions are favorable for the use of such appliances.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

THE general situation as to trade and industry, according to the May report of business conditions issued by the National City Bank of New York, has shown some further improvement during the past month, although the fundamental difficulty, which is the disruption of the price level between raw products and manufactured goods, is yet far from overcome.

"According to government reports," the bulletin continues, "the level of the principal farm products declined 5.6 per cent in March, whereas the normal movement in March is upward, and over the last ten years has averaged 3.4 per cent. On April 1 the index figure of farm products was 58.3 per cent lower than a year ago, 48.6 per cent lower than two years ago and 27.6 per cent lower than the average on April 1 of the past ten years.

"Other primary products, such as lumber and the metals, as yet have made no recovery, while on the other hand manufactured products, especially at retail, freight charges and personal services generally have made no corresponding decline. Naturally the sale of manufactures has fallen off, railway traffic has declined and there is a large amount of unemployment.

"Nevertheless, there is bound to be more doing in the spring than in midwinter, and the industries are going much better than they were three months ago. The automobile industry naturally is stimulated by spring and good weather, and has come back strong. The tire industry has revived, and one of the biggest tire companies, which was in financial difficulties as a result of the sudden falling of business in the face of big inventories, has been successfully refinanced and started on its way. The tire industry is an important factor in the cotton-spinning industry, and the mills that are getting busy again on tire materials are no longer competing upon other cotton fabrics.

"The building industry is the one that should show the greatest improvement, as there is an undoubted shortage of houses everywhere, but building operations are held in check by the excessive costs.

"It is evident on every hand that the depression which exists is due to the unbalanced state of industry as regards the compensation received by important bodies of people. A great portion of the population suddenly has lost a large part of its purchasing power, and no longer is able to buy the products of the other industries as it has been accustomed to do. The people in the other industries, employers and employees alike, seem to have no definite idea about what has happened to them, but are sitting around, trying to cheer each other up, and watching the skies for better weather."

American Loco. Co. Gets Big Order

The Peking Kalgan Ry. of China is reported to have placed an order for forty-two locomotives with the American Locomotive Co. The value of the order is estimated at \$2,600,000. The railroad ordering this new equipment is owned by the Chinese Government and the financing has been arranged jointly by the American Locomotive Co., and Mitsui & Co. Basis for the financing calls for payment by Mitsui & Co. to the

American Locomotive Co. of 50 per cent cash upon completion of the order and the remaining 50 per cent in eight semi-annual installments. The contract calls for Pacific, Mikado and Mallet types of engines.

Pere Marquette Re-employs Men

More employees, it is announced, were reinstated in the Pere Marquette R.R. shops at St. Thomas, Ont., May 1. This has brought the shop staff almost to normal.

Hosiery Mills Work Full Forces

The Parker Hosiery Mills, in Portsmouth, Va., have resumed operations with a full force, according to an announcement May 5. The knitting department of the mills was closed since the early part of the year because of lack of orders. It is understood that another mill owned by the company in Maryland will soon resume operations.

Ingersoll Plant Working Again

That the watch plant of Robert H. Ingersoll & Bro., at Waterbury, Conn., which closed some weeks ago because of business depression, would reopen May 9, was announced last week. Nearly 600 employees were affected by the lay off.

Texas to Have Big Cement Works

A charter for a \$3,000,000 portland cement manufacturing company has been granted to John J. Sharp and L. C. Ihnen of Castroville and W. S. Campbell of San Antonio, Texas, under the title of the Gulf Portland Cement Association. They also have secured raw material properties needed for the plant, which will be located within three miles of Castroville and the Southern Pacific Railway.

Wheeling Tinplate Mills Reopen

Officials of the Wheeling Steel Corporation announce that their tinplate mills at Beech Bottom and Yorkville, W. Va., resumed operations Monday, April 25. More than 1,000 employees are affected at the two plants. Officials said they believed that the revival of the tinplate business would enable them to continue operations indefinitely.

Two Yarn Companies Open Mills

The Grant Yarn Co. and the Fitchburg Yarn Co. at Fitchburg, Mass., reopened their mills Monday, April 25, on reduced wage scales. Details of the revisions were not made public. The mills employed about 800 hands before they closed last July.

Erie Railroad Shops Close

Orders were issued April 28 for the closing of all repair shops of the Erie R.R. between New York and Chicago for an indefinite period beginning Monday, May 2. At regional headquarters, Hornell, N. Y., it was said that more than 5,000 men would be thrown out of work.

D. & H. Shops Shut Down

The Delaware & Hudson Railroad shops at Colonie, Green Island and Oneonta were closed Wednesday night, April 27, for an indefinite period, it is announced by company officials. About 1,500 men are affected.

The Cost of a Ton of Coal

BY GEORGE OTIS SMITH*

SOME years ago the present editor of *Coal Age* and myself, in discussing the cost of coal, explained the lively public interest in the subject as largely due to the fact that coal is one of the few raw materials which the average citizen buys directly. Iron and wool and wheat we buy in other forms, but we know the unit price of the coal we burn and we easily visualize the "coal barons" who are said to fix that price. We are convinced that our coal costs us too much, and we become zealous advocates of some form of price limitation whereby the profiteers may be kept within bounds, but with all this zeal we have few facts at hand on which to base any analysis of the items which make up the cost of the ton of coal delivered in our cellar.

The total production of coal in the United States is approximately six tons for each inhabitant, but about one ton of coal a year is the per capita consumption for heating and cooking; the other five tons or so which must be charged to every man and woman and child in the United States are paid for indirectly in the prices we pay for all the manufactured goods we buy and in our street car and railroad fares and electric light and gas bills. So one ton is the measure of the average individual's direct interest in the price of coal, though New England residents have a larger interest by reason of the larger consumption in that region.

The householder in the East, in thinking of coal, has in mind anthracite, not bituminous coal, and the domestic sizes, not the steam sizes. Too often mention in the daily press of a shortage or a surplus of bituminous coal is misunderstood by many readers, who think only of hard coal.

SEPARATING ITEMS OF COST OF A TON OF COAL

Last winter full information came into my hands regarding a car of anthracite coal mined in Pennsylvania and sent by rail to northern New England and there delivered to individual consumers, my own household being among those consumers. Every item of expense from the mine face to the cellar bin is available and the cost of a ton of coal can be separated into its various items. It was egg coal mined in December, 1920, and delivered early in January, and the cost delivered is believed to represent average conditions, except that owing to inability to get the coal through dealers it was obtained direct, and therefore no wholesale or retail dealer's profits are included; only the local dealer's charges for services in handling the car on the siding and weighing the coal. All cost items have been reduced to the short or net ton, as the measure most familiar to the coal user.

The statement which follows shows that of the total cost of the coal—\$15.17 a short ton—the mine price was \$6.92; transportation cost, including tax, was \$6.44, and local charges \$1.81.

COST OF ONE NET TON OF ANTHRACITE COAL, EGG SIZE		
Labor—Inside.....	\$3.38	
Outside.....	.64	
Powerhouse and general colliery.....	.18	
Administrative.....	.07	
		\$4.27
Material—Inside.....	.79	
Outside.....	.57	
		1.36
Reserves—Local taxes.....	.12	
Insurance, compensation and other hazards.....	.24	
Depreciation, depletion, obsolescence, etc.....	.33	
		.69
Cost to producer (total mine cost).....	\$6.32	
Selling expense.....	.08	
Margin from which are to be paid Federal taxes and dividends	.52	
		\$6.92
Cost to buyer at mine.....	\$6.25	
Freight charges.....		
United States tax on freight.....	.19	
		6.44
Cost to buyer, delivered at local railroad station in Northern Maine.....	\$13.36	
Yard and office expense of retail dealer.....	.22	
Delivery in consumer's bin.....	.59	
		\$15.17

*Allocated cost for egg size is approximately one-quarter higher than average cost.

† No other middleman's costs or profits included.

*Director U. S. Geological Survey.

This cost analysis affords food for thought. That nearly half of the price the distant consumer pays for his coal is transportation cost may or may not be commonly realized, but that 19c. of that freight bill went to the U. S. Treasury may be a new idea to him. But before we declaim too loudly at the excessive freight rates it is well to compare the cost of the long railroad haul with that of the short local delivery haul; here it was about 1c. per ton mile on the railroad and several dollars per ton mile on the village streets. Another comparison of cost that suggests the need of focussing personal attention on the distribution end as well as of asking Congressional investigation of coal producers is found in the item of 8c. for selling expense at the mine, which includes cost of operating the storage yard, to which might be added the 7c. item for administrative labor in mine office, while the local dealer's charge for weighing the coal and arranging for its delivery was 22c. a ton. It should be remarked that no degradation or shrinkage charge was figured to offset loss in transit, for the excellent reason that the car arrived overweight.

COMPARISON OF MINE COSTS AND DELIVERY COST

Still another instructive comparison is afforded between the item for mine labor, \$3.38, and that for local delivery, \$1.58; the latter operation involved lifting the ton of coal twice by manual effort but under much different conditions. The miner had not only to load this ton of coal but previously he had to break it down from the working face, and the mining operation also involves the handling of half a ton of rock for every ton of coal mined, and this item of inside mine labor also includes such other "dead work" as is involved in timbering and ventilating and draining the mine, seven board feet of lumber, $\frac{1}{3}$ ton of air, and eighteen tons of water being stated as the average quantities involved in the mining of a ton of anhracite coal, as well as the underground haulage of the coal, doubtless for a much longer distance than is included in the local delivery from railroad siding to the consumer's home. Mine workers' wages are admittedly higher than ever before, but so are wages elsewhere, as is well realized whenever the city householder hires a husky laborer to carry coal from the curb to the coal chute. Two of the teamsters delivering this carload of coal earned each, with a helper, \$18.50 and \$19.50 for a day's work. The skilled mine worker far underground did not do much better than that. Again we do well to watch distribution charges probably while we talk of production costs.

OPERATOR'S GAIN NOT LARGE FOR HAZARDOUS INVESTMENT

A glance at the depreciation, amortization and depletion item of 33c. suggests that in this respect this ton of coal costs less than much that is mined, since on Girard estate lands the royalty alone averages over \$1. The margin of 52c. between mine cost and price f.o.b. mine includes federal taxes and the mining company's profit—that is to say, the federal taxes must be paid and deducted from this 52c. before the profits available for dividends can be determined. It should be explained, moreover, that the mine costs as figured in the table above are in terms of the higher-priced domestic sizes and are therefore correspondingly greater than for the average of all sizes, and the mine operator's margin indicated is a third larger than the average that holds for the total tonnage, which is less than 40c. to the short ton in December, and indeed was less than 36c. for the whole year of 1920—figures which are not suggestive of the profit that might reasonably be expected in a somewhat hazardous type of industrial investment.

The ultimate consumer of anthracite coal must face the facts that production costs have increased; royalty rates have at least doubled within the last decade, and the labor item is about twice what it was ten years ago; while the freight cost likewise has shown a tendency to multiply itself. Undoubtedly some mines may show a larger profit than that

indicated above, but others report even lower margins between cost and realization, as must be expected where large royalties are being paid. Whatever these profits at the mine, it is doubtful if they equal the profits accruing to some of the wholesale and retail dealers that handle the same coal. It is a hopeful sign that in their meetings the coal dealers are giving attention to the subjects of cost-keeping and labor-saving, and it is surely in the public interest that more light be thrown upon the costs of coal distribution, especially as, with most of us, these costs can be a subject for short-range investigation.

Union Men Face Starvation in Alabama

BEING denied work by the operators, who have all the workers they need, and being refused support by the union, which urged them to strike, about 26,000 mine workers of Alabama are in abject poverty. The union support they received during the strike was so meager that it afforded them no more than a bare subsistence. When it was withdrawn, as it was when the strike was lost, it left them entirely without means.

They have tried to get work, but the mines are not running steadily, and the operators feel that they would not be justified in dropping or giving irregular work to those who stood by them during the strike in order to care for those who tried to prevent them from doing business. At Marvel, of the Roden Coal Co., one of the model towns of the South, where every endeavor was made before the strike to make the men comfortable, there are 634 destitute men, women and children.

Pratt City local has made formal demand on Governor Kilby for financial relief. The southwestern division of the Salvation Army has made a call on the Governor for help to supplement what it is doing. Governor Kilby in his strike decision declared that the union, which had fomented the strike for its own purposes, should itself provide for the care of the idle men, but this it declared it was unable to do.

River Coal Moving to Louisville, Retailers Stock Their Yards for Future Needs

LOUISVILLE retailers are beginning to stock coal, figuring that markets will advance and that they will make a profit on coal stocked, and that they will at least have fuel in hand later when demand is heavier. There is a movement among the leading retailers to stock about one-half or better of yard capacity.

There has been a heavy inbound movement of river coal to Louisville of late, the Atlas Coal Co. receiving its first river coal in four years, consisting of two barges of West Virginia lump, out of a purchase of ten barges. The Pittsburgh Fuel Co. is unloading fourteen barges, and the Volkman & Kerlin Coal Co., C. F. Snyder Coal Co., E. T. Slider Co., Dugan Coal Co., and some of the Jeffersonville and New Albany coal companies have barges that are being unloaded. More river coal is moving than at any time for many years past, as West Virginia operators need business and are in position to ship, while today there are more barges and better transportation facilities on the Ohio, which is promising to stage a comeback for coal movement.

The Atlas Coal Co. had not hoisted a ton of coal up its incline for four years, but had held its equipment intact. This company has fine dumping and hoisting facilities for handling rail coal. The company now is putting in a yard stock of 6,000 to 8,000 tons, and the Pittsburgh Fuel Co., Watson Coal Co., James Coal Co., Byrne & Speed Coal Co., and Scanlon Coal Co. also are stocking. The James Coal Co. has a connection with the R. C. Tway Coal Co., producers and jobbers, and the Tway company has been taking advantage of the dull market to fill up its two local yards to capacity, whereby the mines have been enabled to operate on a five-day basis, including other business on hand.

Operators with retail connections in several instances are taking advantage of the opportunity to stock the retail yards up at this time, feeling confident that future demand and movement will not give much opportunity to lay in surplus stocks.

Migrate from High- to Low-Wage Mines

THE mines in the Connellsville region of Pennsylvania, being non-union, have accepted wage reductions and are being operated, whereas the mines at Scotts Run, Monongalia County, West Virginia, being strictly union operations, have not been asked to concede a lower scale and are idle. In consequence, at least 500 miners have deserted that field in order to obtain work in the Connellsville section.

Operators point out that under the existing wage agreement in northern West Virginia wages cannot be reduced unless the mine workers are willing, but inasmuch as they have made no move in that direction, Monongalia County mines remain closed down. In other words, although the miners in the union field have been entirely unwilling to accept a wage reduction in the West Virginia mines, they are going to fields where wages have already been reduced.

Freight Rate on Salt Reduced to Avert Return of Cars Empty

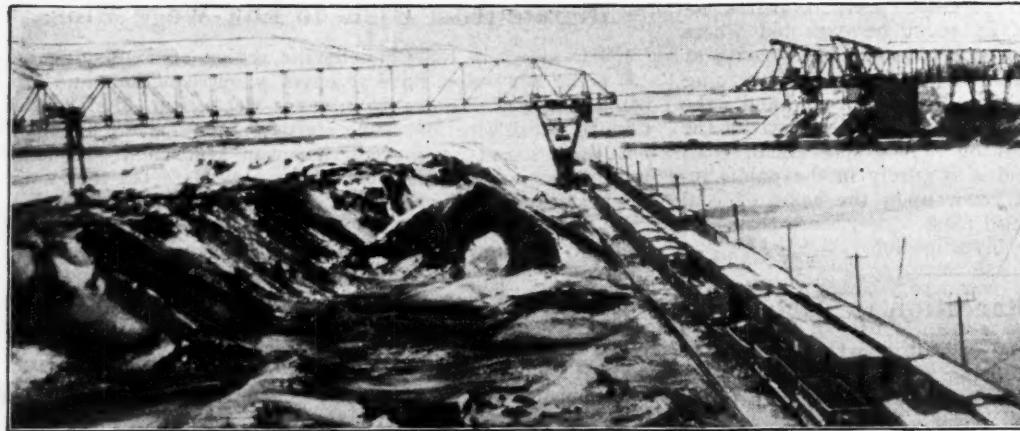
IN ALLOWING a reduction of railroad rates on salt from Utah to San Francisco and intermediate points, the Interstate Commerce Commission has made it clear that it is in sympathy with such reductions where it is necessary to produce tonnage. The rates in question restore those which prevailed prior to the 40 per cent increase. The railroad does not contend that the lower rate is particularly compensatory but states that something will be left over the cost of transportation in addition to enabling the carrier to make use of equipment which otherwise would go to the coast empty. The case presents a situation which the commission holds in covered by the following paragraph of its increased rate order:

"Most of the factors with which we are dealing are constantly changing. It is impossible to forecast with any degree of certainty what the volume of traffic will be. The general price level is changing from month to month and from day to day. It is impracticable at this time to adjust all of the rates on individual commodities. The rates to be established on the basis hereinbefore approved must necessarily be subject to such readjustments as the facts may warrant. It is conceded by the carriers that readjustments will be necessary. It is expected that shippers will take these matters up in the first instance with the carriers, and the latter will be expected to deal promptly and effectively therewith, to the end that necessary readjustments may be made in as many instances as practicable without appeal to us."

Johnson and Gillham Demurrs Overruled, Coal Indictments Stand

DEMURRS filed in behalf of George Johnson, of Johnson & Co., coal dealers, at 90 West St., New York City, and Charles A. Gillham, manager of the New York Steam Co., have been overruled by Judge W. H. S. Thomson, of Pittsburgh, Pa., who heard the arguments in the Federal Court in New York City. The indictments charge violations of the Elkins law by the misuse of public-utility priority orders, and were obtained on information gathered by William McMurtrie Speer, Assistant U. S. Attorney General. Other concerns indicted on similar charges and in whose behalf demurrs have been filed, will, it is believed, be affected by the ruling of Judge Thomson.

NOTICES THAT THE CITY OF INDIANAPOLIS will receive proposals for the annual coal contract soon have been sent out to both operators and retailers by City Purchasing Agent Dwight S. Ritter. The contract may be let to an operator for carload lots to be unloaded from cars and delivered in city wagons if the ultimate price is cheaper, Mr. Ritter said. Consumption of coal at the City Hall, asphalt plant, street cleaning barns, fire stations, police stations, police barns, Garfield greenhouse, recreation centers and city hospital totals 11,000 tons annually. The city has been buying coal at from \$5.70 to \$6.30 per ton, but expects a reduction of approximately \$1.25 per ton on the new contract.

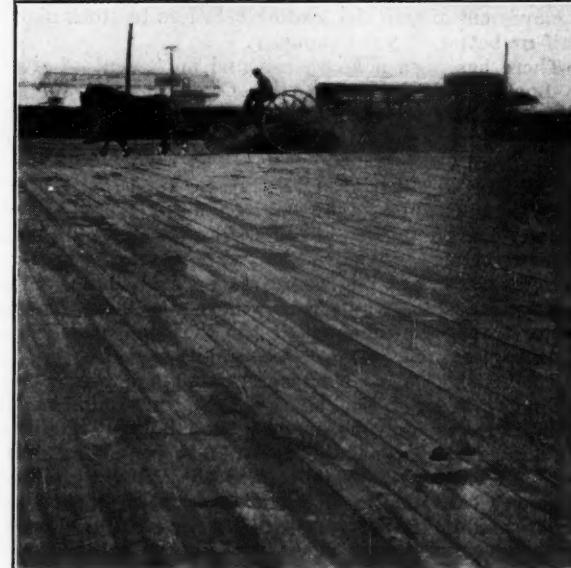
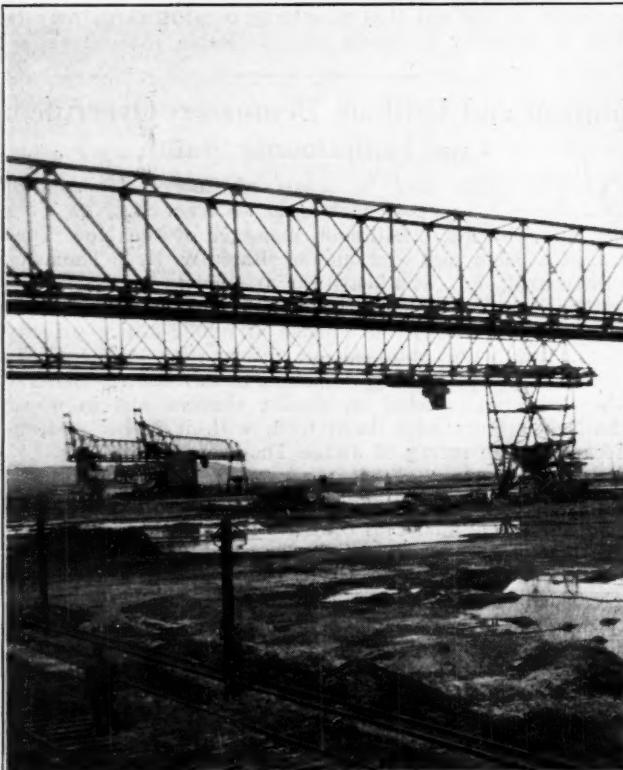


Plenty of Coal

This picture, taken on Jan. 1, 1920, shows about 300,000 tons of bituminous coal on the No. 2 dock of the Carnegie Dock & Fuel Co. at Duluth. The coal is being loaded into the cars in the center of the picture for delivery in the Northwest.

Four Months Later

Between Jan. 1 and May 1, 1920, when the second picture was taken, the supply at No. 2 dock had declined from 300,000 tons to 50,000 tons.



Cleaning Up

The same dock is shown in the picture on the left, practically bare of coal, on July 1, 1920. The picture above shows a street sweeper, requisitioned from the city, cleaning up the last vestige of fine coal from the board floor of the dock at the end of July, three months after coal for the next winter's supply should have been coming in. It was not until Service Order No. 10 pushed coal up the Lakes in August, September and October that coal reserves were accumulated on this and other docks in the Northwest.

Ore and Coal Exchange Begins Season of 1921; 1,222,568 Tons of Coal Loaded to May 1

THE Ore and Coal Exchange at Cleveland will not pool shipments as in recent seasons but the exchange will be continued with H. M. Griggs as manager, as a central point of contact between Lake coal-carrying railroads and Lake shippers, to avoid congestion at the ports and to expedite the movement and distribution of coal.

Mr. Griggs announced at the first daily meeting of the exchange, on May 2, that the total loading of Lake coal this season to May 1 had been 1,222,568 tons, of which 1,176,506 tons was cargo and 44,060 tons vessel fuel. These are the official figures up to April 23, the loadings during the following week having been estimated on car basis.

The following are the tonnages of cargo coal loaded up to May 1 in previous seasons as well as this season:

	Tons
1914	645,000
1915	556,000
1916	926,000
1917	651,000
1918	891,000
1919	1,133,000
1920	329,000
1921	1,222,568

The loading for 1921 up to May 1 is the largest in the past eight years, being 850,000 tons greater than to the same time last season.

The loading for the season to April 1 was as follows: In January, 1 cargo of 10,600 tons; in February, 12 cargoes of 103,377 tons and in March, 23 cargoes of 235,238, making total of 36 vessels loaded prior to April 1 with 349,215 tons, of which 335,913 were cargo and 13,302 vessel fuel. This is the earliest as well as the heaviest winter loading of which the exchange has any record.

The carry-over of bituminous coal on April 1, 1921, by distributing docks on Lakes Superior and Michigan is estimated by the Geological Survey at 2,250,000 net tons. In the season of 1920, when a late start was offset by heavy shipments under an Interstate Commerce Commission order establishing preference and priority of cars for the Lake trade, the total movement up the Lakes amounted to 22,408,355 tons of cargo coal. This, while smaller than the figures for 1918 or 1919, proved entirely adequate for the Northwest's requirements, due to an exceptionally mild winter and the low rate of industrial consumption.

AVERAGE CONSUMER DELAYS COAL PURCHASES

Northwest buyers are being urged to place their orders early. Dumpings for the season to May 1, 1921, are 1,176,000 tons, considerably more than for the same period during any of the four preceding years. However, this tonnage is mostly confined to affiliated dock and mine operators, as the average buyer has delayed purchasing because of the industrial sluggishness. Scarcity of bottoms may interfere with the continuance of this early rate of shipment. Down cargoes are as hard to obtain, as the ore and grain markets are slow. Charter rates effected so far are on the basis of last year's figures.

A decision of the Interstate Commerce Commission effective July 6, 1921, has brought about a general revision of interstate rates on coal from the Duluth and Superior docks.

A virtual mileage basis is to be in effect in an attempt to remove inequalities in the interstate rates. Lowered rates are ordered to many points in North and South Dakota and in portions of Minnesota. In the western half of Minnesota, however, rates are quite generally raised. The effective date may add materially to the delay in getting coal forward, for no one will order coal for the interior until the lower rate can be obtained. However, buyers at those points which are to be increased probably will "shop early."

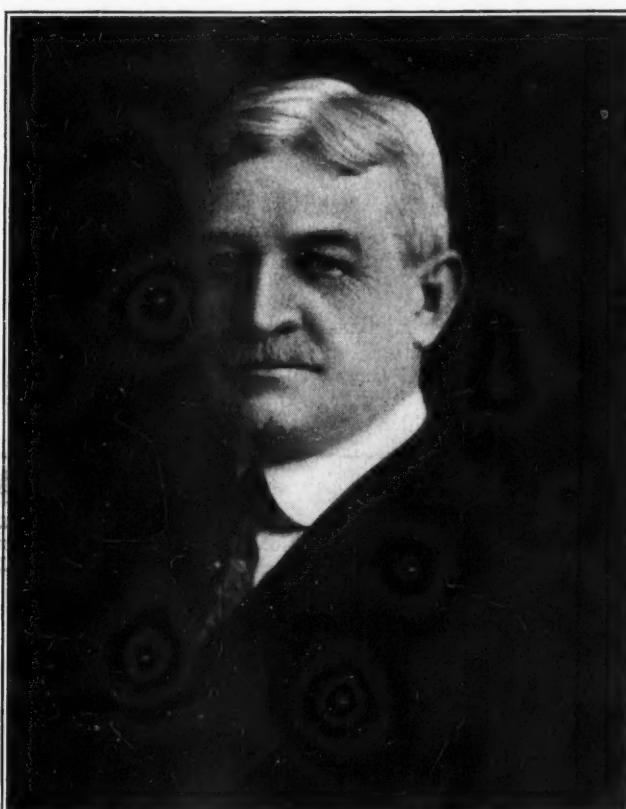
Early in May permission also was granted Eastern carriers to publish proportional rates on bituminous coal from the mines in Ohio, Pennsylvania, West Virginia, Kentucky and Tennessee to Lake Erie ports 28c. per net ton lower than present rates, to apply on Lake cargo coal consigned to west bank Lake Michigan ports north of the Illinois-Wisconsin state line and to Lake Superior ports west of Whitefish Point, including Port Arthur and Fort William. The new rates will expire by limitation at midnight Oct. 31.

The application was for a correction of a maladjustment in the rate situation which grew out of war-time advances in the rates and resulted in an alleged discrepancy of 58c. per net ton. Corresponding reductions from the Northwest docks to destinations tend to restore the ante-bellum rate relationship as between the Eastern mines and the mines of Indiana and Illinois in competition for the coal trade of the Northwest.

However, it is felt that with at least a part of the discrepancy removed by adjustment in the rates from mines to Lower Lake docks, shipments of cargo coal will be greatly stimulated and a healthier movement of the traffic will be evidenced, as contrasted with the lethargy of the trade.

Anthracite stocks on the docks are very low. Buffalo loading has been brisk to the limit of vessels offered. More than 300,000 tons of hard coal were loaded up to May 1, although but few cargoes had cleared by that date. Apparently there will be a slump in this business, as the soft-coal ports are now taking all the available bottoms.

THE FINAL DAYS of the Minnesota Legislature saw the quietus to the resolution to have an interim committee investigate the coal business. The resolution failed by a vote of 28 to 48. Apparently its only excuse for existence was to provide access to public funds for certain of the "lame duck" variety of politician. There was nothing that could be reached by any Minnesota law, and this was practically admitted. What little might have been gained in the way of information should have been available already in an investigation made during the past year by a representative of various organizations, in which the State of Minnesota aided with funds. So after serving as a foundation for an outburst of oratory, the resolution was laid away to rest.



HERMAN M. GRIGGS
Manager, Ore and Coal Exchange, Cleveland, 1918, 1919, 1920, 1921

Government Co-operation, Not Interference, Essential To Functioning of Coal Industry*

BY THOMAS H. WATKINS

NO ONE will question that the government already has a relation to our coal resources—at any rate the mine operator will not question it. If he did not fully realize it before the war, since then it has been brought home with a great deal of force; the subsequent activities of the Federal Trade Commission, Interstate Commerce Commission and various special Congressional committees have been sharp reminders of this fact.

The taking over of the conduct of the industry by the President of the United States, and the appointment of a Fuel Administrator to control production, prices and distribution, in order to successfully prosecute the war, was very definite evidence that the government has a relation to our coal resources.

The question does not imply that the government has no relations now, but is rather "what should these relations be?" The government is supposed to represent the public interests, or, in other words, the interests of the people as a whole, and not any particular class. The mine operator and miner are of the people; it is their government as much as anybody's. It is unquestionably to their interest to sustain it and, in a helpful and practical manner, to make it efficient.

Coal is the basic necessity of our present-day civilization, and those engaged in the industry, whether miner or operator, have a direct responsibility to the public at large. On the other hand, the public has its responsibilities to those engaged in production and distribution, which are not always recognized. It seems to be taken for granted at times like the present, when the industries of the country are partly paralyzed through a buyers' strike, that mines and miners should remain at the beck and call of the consuming public's pleasure as to when they will take in their coal supplies. They are, however, expected to keep their mines in order without a realization of the great fixed expense involved. Mine labor is asked to wait, ready to produce the coal without any income upon which to subsist in the meantime, until it suits the buyer to make his contracts.

LOW FINANCES PREVENT INCREASE OF RAILROAD STOCKS

Unfortunately, our greatest consumers, the railroads, are in a serious financial predicament. In place of laying in stocks, they are at the moment using up those that they have on hand. The great steel industries are almost prostrate, and they are among the largest consumers of coal. Factories are either idle or working only part time and using up their stocks on hand, many pursuing this policy through lack of funds; others through a belief that coal prices and freight rates must be materially reduced.

Unfortunately, operators and miners are both treated at this time by our prejudiced critics as if they were apart from the people—the operator being either a coal baron, robber or conspirator; the miner a striker, loafer or generally an undesirable citizen. As a matter of fact, both mine owners and miners are quite as human, quite as respectable, quite as patriotic, and, I might add, as unselfish as the average American citizen, and quite as willing to give and to sacrifice in order to protect our institutions from false theories of government as any other class of our people.

There probably was no other industry in the United States regulated and controlled so drastically or firmly as the coal industry during the war period. I question whether any other industry responded to such regulation as cheerfully and uncomplainingly as did the operators and mine employees. The co-operation given to Dr. Garfield, as Fuel

Administrator, during that trying period by both operators and the miners' organization received the highest commendation from him, and furnished a wonderful example of how the government, representing the common welfare, the operators and miners, could co-operate to maintain the integrity of our form of government.

We have witnessed the disastrous result to England of the control of coal production by the strongest combination of labor that was ever created. A proper solution that would protect the interests of the people as a whole has not yet been found in England.

The country demands lower prices on all commodities; in many directions adjustments have been made. Food has fallen 22 per cent. Labor has fallen 15 per cent. The Department of Labor states that the cost of living made up on the same budget is now at the same point that it was in 1917.

LABOR WAGE CONTRACTS SHOULD BE MODIFIED

The miners' organization has at times failed to live up to its agreements, or has forced modifications in its favor because of changed conditions. In some districts the United Mine Workers have been asked to consider a modification of the present agreement. Operators having contracts cannot honorably refuse to carry them out, but they can ask for a discussion and a modification of the contract, and are doing it, possibly with very little hope of success. If organized labor cannot meet the situation by a modification of the present contract the great body of the public will know who is to blame.

Operators generally have reduced their prices to very narrow margins, in many cases below the cost of production, so that they can offer no permanent relief in the way of reduced prices unless the wage agreements are modified.

One of the great problems connected with the mining of coal is caused by the intermittent demand, and the manner in which that demand is supplied. In many instances today we have collieries working full time supplying railroads with their fuel; some supplying public utilities; others supplying large consumers, while many collieries, whose trade is with varied industries and domestic consumers, are idle.

Many producers of coal today are selling it below cost in order to keep their miners partly employed, but expect to regain the losses they now are incurring from high prices in the fall. Somebody will be blamed for this condition, if it occurs, and it probably will be the coal operator, but the warnings that now is the time to contract and lay in a reasonable supply of coal are practically going unheeded. Mines and men are idle in every section of the country. It seems inevitable that if this hesitation continues two months longer, and coal does not commence to move more freely, our railroads will be unable to meet the slug of demand that will come for fall and winter requirements.

CONSPIRACY INDICTMENTS AN "OUTRAGE"

In connection with government activities in our coal situation, I would like to call your attention to the criminal indictments involving some two hundred and thirty-six individuals as mine owners and managers, together with many officers of the United Mine Workers. In these indictments the mine owners and miners' officials are charged with conspiracy under the Anti-Trust laws. To those who are familiar with the situation these indictments seem to be an outrage upon common sense in the direct attack on the principle of collective bargaining, which so far is the best-known method of making and enforcing wage agreements between employers and their employees.

Charges are made in the indictments that the operators

*Abstract of address before The United States Chamber of Commerce, April 27, 1921, at Atlantic City.

and miners have agreed together to restrict production in order that the price of coal may be maintained or raised. While the methods practiced by the United Mine Workers in many instances are subject to severe condemnation and need correction in the interests of the public, I do not believe it can be truthfully said that they ever agreed with the operators—or attempted through agreement with the operators—to restrict production. What has been done in that line has been done through strikes and failure to effect agreements, or to live up to agreements already made, and if the principle of collective bargaining is destroyed and prohibited under the Anti-Trust law, we may find other serious trouble while seeking for a proper method of arranging wage scales.

Speaking only for myself, I am not in favor of any action that takes away the right of men to organize. I am, however, distinctly of the opinion that labor when organized must submit to reasonable regulation. President Roosevelt once said large combinations of capital and of labor are inevitable, but that they both must come under government regulation.

Government co-operation—not government interference—is essential. We have seen our railroads and many of our public utilities regulated out of efficiency and out of credit. We have seen our commissions and our legislators ignore common sense and equity, responding to the clamor of groups that were supposed to have the vote. Suspicions of the motives of all of our captains of finance and industry were prevalent and co-operation was nil. Distrust must be replaced by confidence in our government relationship to our coal resources.

ALL SHOULD STRIVE FOR EFFICIENCY

Mr. Hoover appears to make it clear that many of our various Government departments need reorganizing, and we should all help in putting them on an efficiency basis, functioning for the common good, but we don't want them reorganized on a basis that will make it necessary for us to get a permit before we can sell a ton of coal, or buy a suit of clothes, or a loaf of bread.

None of us wish to spend all of our time in Washington, or to conduct our business from there, but we should insist on maintaining our trade associations, with headquarters in Washington—this Chamber of Commerce, our National Coal Association and others—and we should continue to use our representatives to help promote efficient government and wise legislation, and I think we should also insist on the union organizations maintaining their headquarters at Washington (although Mr. La Follette probably will see to that), but they should be there and subject to the same publicity of their practices and aims and expenditures, and with the same responsibility to the public for their actions and their contracts, as our associations.

Through the Department of the Interior we have an excellent illustration of government help and co-operation in connection with current coal production as well as our resources. The Bureau of Mines, with very limited appropriations to carry on its work, has been most efficient in the advancement of ways and means to secure the safety of the miners. Its rescue station and first-aid work, and its experimental work with dangerous gases has been invaluable. Its investigations into qualities of coal, and its testing stations for determining the efficiency of coals all have been excellent, although limited.

The Geological Survey branch of the Department of the Interior has furnished most valuable information as to our coal resources. The geological maps furnished by this department are invaluable in many districts. The work should be completed, covering all the coal fields throughout the United States. Statistics on coal production, which are now published weekly by the Geological Survey, should be continued.

I am sorry I cannot say as much for the Federal Trade Commission. If that department of the government were used only to get facts for publicity, it also could be made valuable, but, unfortunately, it has not been cleared from the suspicion that data are prepared for the purpose of bolstering up theories and policies with which it should

have nothing to do. Picking out a few isolated instances to show low costs and high realizations has resulted in a spirit of distrust toward that commission on the part of coal operators generally. Co-operation between that department and coal producers is sadly needed. If that department is to function for the good of all it is absolutely essential, in order to prevent waste in the mining of coal, that no false impressions be conveyed as to costs. Proper allowances must be made for contingencies and, as we all know, averages are dangerous figures upon which to base conclusions.

Periodically, and principally because of some severe restriction of output and distribution of either anthracite or bituminous coal, there has been a public outcry for some sort of legislation leading up to the regulation of the coal industry. Our courts have been used to seek for illegal combinations in the coal trade; governmental and State Legislatures at various times have investigated the anthracite and bituminous industries. These industries are again confronted at this session of Congress with bills to regulate them; Senator Frelinghuysen has introduced a bill and Senator Calder has introduced a bill. It is in the minds of a great many people that the industry will be forced to come more or less under government regulation.

GOVERNMENT REGULATION LIKELY TO BECOME VIRULENT

It is important to the members of the Chamber of Commerce, and to all of the public of the United States, that any proposed legislation should receive the most careful consideration. If coal is to be regulated, the inevitable tendency will be for the government to take an active part in every other industry, and the steel industry, textile industry, in fact all industries, will sooner or later be affected by any legislation that is enacted to regulate the coal industry.

I think the sentiment of the majority of coal operators of the country is averse to any sort of legislation regulating the industry. Whether or not this sentiment is wise, I am not clear. I am clear, however, that we should have government co-operation, and not government hindrance. The varying qualities of coal, the varying costs of mining, transportation and distribution make it a most complex problem. In my judgment rigid rules or regulations will work nothing but disaster.

As I read the bills introduced by Senator Frelinghuysen I am inclined to think they might be helpful with some important modifications, such as representation by advisory committees of both operators and labor, who could assist in assembling correct information which should be treated without prejudice when given publicity.

We have had so many experiences as a result of our public officials giving out distorted statements, coloring the facts to suit their own theories, that I feel the industry, and the public as well, should be guarded from a repetition of these practices. I personally believe there can be no real objection to the government's ascertaining facts as to cost of production, investment, realization, etc., but there are so many views as to what is the proper way of ascertaining costs, and of how to arrive at the real investment, that it will require great care and honesty of purpose in arriving at the facts.

SOME NOT OPPOSED TO CONSTRUCTIVE LEGISLATION

However, it may be interesting to you to know that all operators are not opposed to discussing or considering constructive legislation in relation to the coal industry, as well as that of other basic industries.

Directly following the armistice, in the early part of 1919, at the request of Dr. Garfield, a few individuals prominently connected with the production of coal, together with leading representatives of the United Mine Workers, met with Dr. Garfield and his staff for the purpose of considering whether some plan of government co-operation could not be recommended for meeting peace problems.

The benefits from the co-operation of the government, representing the public, the operators and the miners in the successful prosecution of the war, was the basis upon which the discussion took place. After some days of consideration, the following plan was adopted and submitted

to the various associations of operators throughout the country, as well as to the United Mine Workers' organization:

"A Plan to Promote the Public Welfare by More Effective Co-operation Between the Government of the United States and Industry.

The following propositions are assumed to be true:

"(a) The underlying facts necessary to the consideration of any question touching industry, such as cost of living, cost of production, labor conditions, transportation facilities, must be ascertained and must be trustworthy.

"(b) These facts should be secured by government agencies, clothed with ample powers to examine and improve them, and the tabulated results should at all times be open to the inspection of the parties in interest.

"(c) The parties in interest in every industrial problem are the public, capital and labor, and no action affecting any of them should be taken until the proposal has been considered by their duly appointed representative. The most appropriate representative of the public is the government.

"(d) The determination of facts and the formulation of administrative policy are two separate functions and should not be performed by the same agency.

WOULD COMMIT FACT FINDING TO PERMANENT DEPARTMENTS

"Outline of proposed plan:

"(1) Commit the finding of facts to the permanent departments and commissions of government.

"(2) Create by executive order a limited number of administrative commissions, say seven, representing between them and properly grouped the basic industries of the country.

"(3) Each commission shall be composed of a director, to be appointed by the President of the United States, and an equal number of representatives of capital and labor engaged in the industries included in each group. The director shall be the chairman of the commission. Each commission shall meet upon call of its chairman or a majority of its members, at such times and places as may be designated. The function of each commission shall be to consider the problems of the industries included in its membership and to make recommendations to the President. The commissions shall be purely advisory bodies.

"(4) The several directors shall have such powers and authority as may be delegated to them by the President of the United States. Each director shall ex-officio serve as a member of the Industrial Cabinet.

"(5) The Industrial Cabinet shall be composed of the directors of the several commissions, and shall meet with the President of the United States at such times as he may designate. The function of the Industrial Cabinet is to advise with the President of the United States upon industrial problems and policies."

(The plan itself, the justification for it, and explanatory letters by Dr. Garfield, can be obtained at the offices of the National Coal Association in Washington.)

APPREHENSION AS TO PERIOD OF RECONSTRUCTION

It should be borne in mind that at the time of this conference, the coal and industrial situation of the country, following the armistice, was about in the condition that it is today, and fear was then, as it is now, in the minds of many people that we were facing a long period of readjustment and reconstruction, and that government assistance might be necessary in hastening the return to some sound business policy for peace times.

I believe there are some thoughts in connection with this plan which merit the attention and criticism of this group, and also of our administration and legislators. As a matter of information I must add that the plan was submitted in 1919 to groups of operators and various associations composing the National Coal Association, and failed to meet with general approval. It experienced the same treatment at the hands of the United Mine Workers.

This, however, was prior to the crisis of 1920, and the government's record in handling industrial affairs had not been such as to encourage the belief that a fair spirit of co-operation could be secured, or that a government rela-

tionship could result in anything but higher prices for the public and negligible returns to the investor.

In conclusion, I wish to state that the thoughts I have given out have been uttered with some degree of timidity, and wish it understood that I do not speak for any group of operators. Nevertheless, I feel safe in saying that when the government is willing to approach the subject in an open-minded, helpful and constructive spirit—when it is willing to investigate thoroughly and fairly the vast problems of production, transportation, storage and distribution, before proposing any radical cures—when it is willing to demand of organized labor the same responsibility for its actions and fidelity to its contracts that it demands of the employer—then it will not find the coal operator a stumbling block in working out an efficient relationship which will afford the desired protection to the public, without injustice to the miner or operator, or waste of an essential resource.

Hard Rock Miners' Wages Reduced

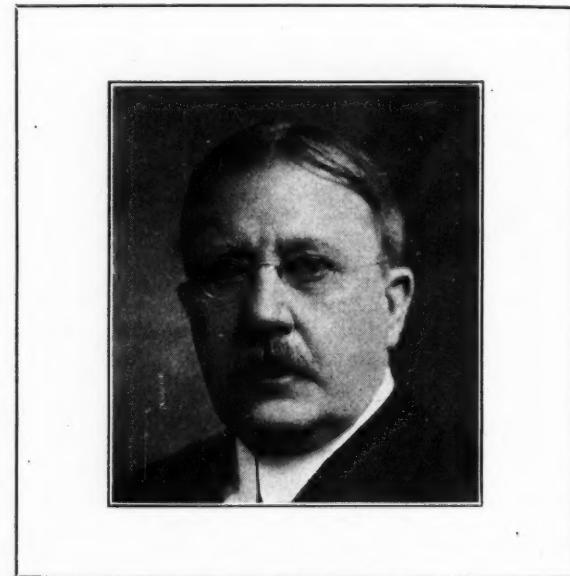
WAGE reductions affecting approximately 2,000 employees of mines and smelters in the Coeur d'Alene district of Northern Idaho were announced April 21. They amounted to 50c. a day for mine workers and 75c. for smelter men.

In addition to the Bunker Bill and Sullivan, the Caledonia and the Sierra Nevada companies, which announced reductions April 20, the Federal, Hecla, Hercules, Tamarack and Custer and Callahan zinc mines have posted similar notices. The three latter companies have been employing only a few men in development work, it was stated.

The reductions, which became effective May 1, brought the wages of miners to \$3.75 to \$4.75 a day, and those of smelter men to \$3.50 to \$5.25.

PAYMENTS MADE TO THE RAILROADS under the Winslow Act totaled \$125,122,990.05 on April 27.

THE POST OFFICE DEPARTMENT has requested a deficiency appropriation of \$10,000 for fuel, due to increased costs.



F. W. WHEATON

Chairman of the Board of Directors of the Lehigh Valley Coal Co., having been appointed at the same time as John M. Humphrey, president, and Thomas P. Thomas, general manager. He was appointed local counsel of the company in 1879, being associated with E. P. and J. B. Darling. In 1901 he was elected judge of Luzerne County, in which position he served till 1907, when he resigned to become once again local counsel for the coal company. In 1910 he became general counsel.

Coal Men and Government Experts Will Meet to Agree on Information To Be Required by Frelinghuysen Bill

BY PAUL WOOTON
Washington Correspondent

AS AN outcome of the activities of the Interstate Commerce Committee of the Senate, looking to systematic fact-finding as to the production, transportation and consumption of coal, representatives of the interests concerned will meet in the near future with government specialists to agree upon a plan as to just what information should be collected. Senator Frelinghuysen, chairman of the sub-committee handling the proposed legislation, will be a party to the conference. The producers, the wholesalers, the retailers, the anthracite industry, the railroads and the public will be represented. The Secretary of the Interior and the Secretary of Commerce have been invited to participate in the conference.

The conference was suggested by J. D. A. Morrow, vice-president of the National Coal Association. On May 4 Mr. Morrow appeared before Senator Frelinghuysen's committee and opposed some features of Senator Frelinghuysen's bill. He declared that the National Coal Association is perfectly willing that there be practical, businesslike fact-finding. He showed where it is vital to the producing end of the industry. He asked that the Department of Commerce, charged with aiding industry, be allowed to gather the business facts, leaving to the Department of the Interior the collection of information having to do with the technological side of the industry.

UNANIMOUS DECISION TO REPORT FAVORABLY

For parliamentary reasons, the Frelinghuysen fact-finding bill is to be reported favorably to the Senate at once. The sub-committee on May 7 voted unanimously to report the bill favorably. As this is written, the full committee has not acted on the measure, but it is understood that the full committee will concur in the judgment of the sub-committee. As reported out of sub-committee, the original draft was amended so as to place the administration of the bill in the hands of the Secretary of Commerce. The appropriation was eliminated, as the committee is hopeful that the department has sufficient funds with which to carry on this work. The bill specifically provides that no deficiency is to be created as a result of the legislation.

Such changes in the measure as may be agreed upon at the forthcoming conference will be presented as committee amendments when the bill is taken up on the floor of the Senate.

A significant development of the hearing was the following declaration by Senator Frelinghuysen:

"Expressing my own opinion, I think regulation will create more confusion and will result in greater disorganization. Could not more be accomplished through co-operative effort than through regulation, arbitrarily established and temporary in character, which would disorganize the whole machinery of this industry?"

T. H. Watkins, president of the Pennsylvania Coal & Coke Corporation, spoke in support of the contention made by Mr. Morrow. He was examined at length by Senator Frelinghuysen on numerous phases of the coal situation.

Senator Elkins of West Virginia contributed considerable information. Most of the discussion had to do with facts leading up to the present situation and to the recital of information which is familiar to those who are in close touch with the coal industry.

Verbatim extracts from Mr. Morrow's testimony are as follows:

"It is the belief of the men who make up the executive committee of the National Coal Association that the current collection and publication of businesslike information as to some features of the coal industry, by a practical branch of the Government, can be very helpful to the coal industry itself as well as to the public.

REGULATION OF COAL INDUSTRY NOT NECESSARY

"With the competitive conditions which exist in the soft-coal business—I speak only for bituminous coal—we have always felt that with such information and with the regulation of transportation under the emergency powers vested in the Interstate Commerce Commission, no regulation of the coal industry would be needed. We are opposed to regulation of the industry by the Government.

"If the facts had been available last summer and had been widely published, so that all producers and buyers could have been informed, it would have had a stabilizing effect on the situation. The individual consumer and the individual producer could have seen plainly that there was no warrant for \$15 coal. That type of information we favor.

"This bill provides also for the collection of cost information. A little over a year ago the coal industry felt that the Federal Trade Commission had exceeded its power very greatly in attempting to obtain information of that character and that it was not merely asking for cost information but was attempting to regulate the entire method of cost accounting, book-keeping and the keeping of office records under the guise of requiring these reports. In order to protect whatever constitutional rights we have, we felt it necessary to go into court and endeavor to enjoin the Commission from proceeding to enforce its orders.

OPERATORS SEEK PRACTICAL CO-OPERATION

"The operators would be glad to co-operate with any department of the Government that is practical and reasonable to determine what constitutes right cost accounting. We tried to do that with the Federal Trade Commission and with the Treasury Department. The Treasury had one system and the Trade Commission had another. We did not want to keep two sets of books, yet we could not get those two governmental agencies together. Then it came to the matter of paying \$100 a day fine if we did not do as the Trade Commission demanded, so we went into court to protect our rights.

"This bill contemplates the collection of certain commercial information, such as the current production of coal, the prices that are being obtained at the mines

and the stocks of coal in the hands of consumers. Such data are current business information as distinguished from scientific information. We believe the business information might well be collected by the Department of Commerce. This bill also provides for scientific and technical studies, such as better means of storing coal by consumers. The Bureau of Mines or the Geological Survey could study questions of that kind. We think it is desirable to separate the scientific from the commercial, and put the scientific part of the work in the Department of the Interior, if it requires any authority to do such things.

"If the coal industry could be satisfied that this is an honest and sincere effort to get uncolored facts, without a desire to use facts to bolster up some theory of regulation or control that someone may want to advance, I think the industry would welcome the collection and publication of practical business information."

Coal Men Move That Indiana Conspiracy Indictment Be Quashed

FOLLOWING a consultation between attorneys representing the coal miners, operators, retailers and corporations arraigned in the Federal Court at Indianapolis May 3, on a charge of violating the Sherman Anti-Trust law, it was announced to Judge Ferdinand A. Geiger that no definite date for oral argument on the motion to quash the indictments filed by counsel for the defendants had been reached. Attorneys for the defendants also filed pleas in bar, motions to quash service, demurrers and other legal processes, but only the motion to quash is to be considered until it has been passed upon by the court.

After the filing of pleas Judge Geiger suggested that a recess of several hours be taken in order that L. Ert Slack, Special Assistant Attorney General of the United States, and District Attorney Van Nys might have an opportunity to check up the list of defendants appearing in court through their attorneys and confer with attorneys on a date for the presentation of the oral argument.

When court convened in the afternoon Mr. Slack suggested that more time be granted. This was done, and it is probable that no further steps will be taken until Judge Anderson returns to the bench. However, it may be agreed that Judge Geiger dispose of the motion to quash, and in case he should rule against the defendants the remaining motions would come before Judge Geiger or Judge Anderson at a later date. Attorneys for both sides freely predicted that it probably would be early in the autumn before the cases actually reach trial in the event that all the motions are overruled and the case is ordered to trial.

When court convened W. A. Glasgow, Jr., of Philadelphia, was admitted to the bar of the Indianapolis Federal Court in order that he might take the place of Charles Evans Hughes as chief counsel for the miners and mine union officials. Albert Fink, of Chicago, associate counsel with Messrs. Miller and Dowling of Indianapolis, also was admitted to the Federal bar in Indianapolis in order that he might appear in the case. Frank Dailey, of Indianapolis, entered the appearance of a large number of individuals and corporations, and filed pleas in abatement and motions to quash on behalf of his clients.

Mr. Glasgow, on behalf of his defendants, entered motions to quash and asked time for filing a brief in sustaining his motion. He also asked permission to present oral arguments in the case and entered demurrers and pleas in bar for his defendants. Charles Miller entered motions to quash for a number of individuals and corporations, and Clarence Nichols entered demurrers on behalf of the retailers. Mr. Fink also filed demurrers and motions to quash for a number of defendants.

The motions filed by the attorneys are based chiefly on the contention that the Sherman Anti-Trust Act was not in operation at the time the indictment was drawn, because of the operation of the Lever fuel-control act of 1917. The

contention is made in the motion to quash that the "whole conspiracy alleged in several counts of these indictments was destroyed by acts of Congress and executive proclamations and orders of the United States Fuel Administration, and if any crime was committed it was in violation of the acts of Congress of Aug. 10, 1917, and was punishable under that act and could not be punished under the Sherman Anti-Trust Act."

It also is contended by the defendants that no offense was charged to have been committed within the jurisdiction of the Federal Court of Indiana, that the government had attempted to charge more than one conspiracy and that the indictments did not sufficiently inform the defendants of the charges against them. In the motion to quash filed on behalf of the retailers it is further contended that the indictment does not show that they had any connection with any conspiracy.

The following defendants appeared in court May 3:

Indiana Operators, Retailers and Officers of Coal Associations—George A. VanDyke, Indianapolis; Hubert M. Ferguson, Clinton; John Chesterfield, Brazil; William J. Freeman, Terre Haute; Morton L. Gould, Indianapolis; Jacob O. Kolsem, Terre Haute; Edwin G. Logsdon, Indianapolis; Phil H. Penna, Terre Haute; Hugh Shirkie, Terre Haute; George R. Richards, Terre Haute; Homer B. Tally, Terre Haute; David Ingle, Oakland City; William H. Tobin, Indianapolis; William M. Zeller, Brazil; Edward Shirkie, Terre Haute; Robert J. Smith, Terre Haute; Archibald D. Spears, Terre Haute; Banus E. Neal, Indianapolis; Valentine Martin, Bicknell; Alfred M. Ogle, Terre Haute; Jabez Wooley, Evansville; William B. Zimmerman, Terre Haute; Walter W. Tally, Terre Haute; Warren F. Smith, Terre Haute; Millard E. Mogg, Indianapolis; Jonas Waffle, Terre Haute; Carl J. Fletcher, Indianapolis; Harry W. Little, Evansville; Henry P. Smith, Terre Haute; Bernard R. Batty, Indianapolis.

Miners and Union Officials—John L. Lewis, president United Mine Workers, Indianapolis; Philip Murray, vice-president, Pittsburgh; William Green, secretary, Indianapolis; Percy Tetlow, Indianapolis; Edward Stewart, Terre Haute; William Raney, Terre Haute; Ed Havercamp, Terre Haute; William Mitchel, Terre Haute; John Hessler, Terre Haute; James A. McKinney, Terre Haute; Harry Sutch, Shelburne; Charles Fettinger, Terre Haute; Harry Lentz, Evansville; Ulysses G. Hall, Terre Haute.

Retailers—William Morris, Logansport; Charles W. Grant, Logansport; Roy A. Yeagley, secretary Indiana Retail Coal Merchants' Association, Indianapolis.

West Virginia Coal Tax, Computed on Gross Sales, Will Be Effective July 1

AFTER July 1 of the present year the coal industry of West Virginia will pay a privilege tax on the production of all coal, amounting to two-fifths of 1 per cent computed on gross sales. A bill levying such a tax was passed in the closing hours of the Legislature and was passed largely through the influence of the coal people of the state. The tax on the industry is only a part of what is known as a gross sales tax bill or law, the bill having been drafted by Captain M. G. Sperry, of Clarksburg.

In its original form the bill prescribed that a tax of one-fourth of 1 per cent should be levied on the gross sales of all persons engaged in the mining of coal. Afterward the bill was amended so as to provide for a rate of one-third of 1 per cent. In order to insure the passage of the measure, however, it became necessary in the closing hours of the legislative session to change the rate for the coal, oil and natural gas industries to two-fifths of 1 per cent. The tax imposed is really a production tax but a production tax computed on the basis of gross sales instead of upon a tonnage basis or a barrel basis. All measures proposing an outright production tax computed upon the unit of production were defeated. Governor Morgan made a personal appeal to the Legislature on the last day of the session for the passage of the sales tax.

The new law further provides that if any person liable for any tax under the provision of this law shall ship or transport his products or any part thereof out of the state, and before making sale of such products, shall further manufacture, transform or consume the same, the value of the products or articles in the condition or form in which they existed when transported out of the state shall be the basis for the assessment of the tax imposed.

Frelinghuysen Would Continue Assigned Cars Till Better Way Is Found to Insure Railroads' Coal Needs

SENATOR FRELINGHUYSEN believes the Interstate Commerce Commission should continue to have the power to allow railroads to use assigned cars until means have been perfected to stabilize the distribution of coal. He expressed this opinion when George S. Brackett, secretary of the Northern West Virginia Coal Operators' Association, appeared before the Frelinghuysen sub-committee to urge the discontinuance of the assigned-car practice. Mr. Brackett declared that even in emergencies an absolutely equal distribution of cars among the mines equipped to handle them efficiently would be preferable to the continuance of the assigned-car plan. In the course of Mr. Brackett's testimony, Senator Frelinghuysen said:

"Does not the question resolve itself, in the last analysis, to a question of equal distribution and the utilization of facilities at all times of the year? Is not that our problem, rather than the taking of powers away from the Interstate Commerce Commission? The railroads must be kept running at all hazards and at all costs. That is essential both to your industry and to the welfare of the people. Even if it does increase the cost of coal to others, and even if it makes for inequitable conditions, is it not essential for some governmental commission to have the power to direct the car supply so that the railroads can be kept in operation? If the railroads cannot get coal, everybody suffers.

"I myself have felt that the railroads were favored and that it was somewhat unfair to favor the railroads in the matter of car supply. I have felt that it was unfair to seize contract coal that belonged to industries. I have felt that there should be legislation prohibiting such seizures of coal, but when I realize that unless the railroads have coal, everything stops and that the country will starve, it seems to me that we must bear with that situation until we can pass some legislation that will bring these industries closer together in a co-operative effort to equalize the distribution of coal."

Mr. Brackett declared that the assurance that the railroads have of being able to obtain assigned cars encourages them not to buy in the summer time. Senator Frelinghuysen admitted that there should be some means of inducing the railroads to buy and handle their coal during the periods of the year when they can carry it at the least expense.

Senator Frelinghuysen deplored the practice of buying 500,000,000 tons of coal every year on practically a hand-to-mouth basis, when weather conditions or a strike would place the country face to face with starvation. He declared that it was obvious that the government should take steps which would make it the economical thing to do to carry reasonable surpluses.

Allen and Baker Exonerated of Fraud Charges by April Grand Jury

CHARLES S. ALLEN, secretary of the Wholesale Coal Trade Association of New York, Inc., and Gibbs L. Baker, counsel to the association, on May 4 were completely exonerated of the charges of fraud made against them by Armin W. Riley, ex-head of the government "flying squadron."

U. S. Attorney F. G. Caffey requested Judge Learned Hand to dismiss the indictment. He told the court he had resubmitted the testimony to the April Grand Jury, at the request of the Attorney General, and that the jurors found there was no evidence of fraud, and consequently no reason for the indictment.

The indictments against Messrs. Allen and Baker charged that they had procured fees on the promise of being able to "fix" the Department of Justice and upon Mr. Baker's statement that he had a strong influence with William McMurtrie Speer, then a Special U. S. Attorney.

Messrs. Allen and Baker jointly contended that the indictment by the February Grand Jury in New York was instigated as a result of their efforts to prevent profiteering in bituminous coal in the East, the result of which work they said won them enemies among a certain class of coal men in the local field. It is understood that Mr. Speer appeared before the April Grand Jury and told of actual co-operation given him by Messrs. Allen and Baker. Mr. Riley had charged that only "lip co-operation" was given. Mr. Riley's witnesses, on whose testimony the indictment was found, also were recalled before the April Grand Jury.

Mr. Allen in a statement issued May 4 predicted that the work started by the association and halted by the indictments would now bear fruit.

Pennsylvania Legislature Passes Mine-Cave And Anthracite Tax Bills

IN THE scramble which marked the closing sessions of the Pennsylvania Legislature the Senate reversed itself and gave approval on April 28 to the Fowler and Kohler mine-cave bills, which are duplicates of measures previously defeated in the Senate. It is expected that the Governor will approve, as Senator Crow, the administration leader, came

out in favor of the bills, and the Scranton campaign for cave legislation thus ends in complete achievement.

The Kohler bill prohibits coal companies from causing collapses or subsidences affecting public buildings, churches, schools, hospitals, streets, railroad rights of way, dwellings and cemeteries. Mayors, burgesses and township supervisors receive rights to supervise mining operations, and the penalty for violators is \$5,000 fine and or imprisonment for one year.

The Fowler bill is a compensatory measure, and coal companies accepting it are exempt from certain sections of the Kohler bill. Those which accept are to set aside annually 2 per cent of the value of their coal at the mines, this fund to be administered by a commission of three, appointed by the Governor. This commission will have supervisory power over mining operations and will be authorized to repair properties damaged by subsidence.

The anthracite tax bill, as amended, was passed finally and will be approved by the Governor.

The House accepted the bill of Senator Smith, of Dauphin, providing for the appointment of a board of examiners to pass upon applicants for the office of anthracite mine inspector.

The Dawson bill, granting aggregate increases of \$8,700 a year in Department of Mines salaries, after being defeated by the House, was reconsidered, passed, and then approved by the Senate. It is now in the hands of the Governor, but as appropriations far exceed income, its fate is not certain.

SEVERAL OF THE SPEAKERS who will address the New York meeting of the National Coal Association have announced their subjects. A. W. Douglas will speak on "When Will Business Revive?" John J. Cornwell will speak on "The Relationship of the State to the Coal Industry." "Better Coal Salesmanship" will be the subject of Dr. Stanley L. Krebs, while James A. Emery will speak on "Business Organization and Its Problems." Due to the fact that Senator Cummins will have to preside at the railroad hearing during the time that the convention will be in session, he will not be able to speak, as he had hoped.

THE NATIONAL COAL ASSOCIATION has reduced its assessment from one mill per ton for January, February and March to one-tenth of a mill per ton.

British Strike Continues Unbroken, But Non-Union Men Unload Foreign Coal

A WEEK without conference between mine owners and mine workers gives the British public an idea how far the contending parties are still apart. The British Parliament has been trying to arrange another conference and to take matters out of the hands of the administration as successfully as it did a few days back, but it seems that it is no more successful than Lloyd George. It was reported on May 5 that the striking mine workers were willing to accept arbitration if they could name as the arbitrator Sir Arthur Duckham, the man of their choice. He was a member of the Sankey Coal Commission, which itself was quite unreasonably favorable to the mine workers' claims. That Sir Arthur submitted a minority report asking for more than the commission saw fit to grant is sufficient evidence that he is by no means fitted for the office proposed. The Ministry failed to be in any way impressed by the offer, if indeed it ever was made.

The public takes courage from the fact that the weather has been uncommonly mild and is likely to be even milder in the future and that non-union men protected by military and police are unloading shipments of foreign coal. The government is arranging that the coal shall be delivered at several ports, so as to reduce the difficulty of obtaining non-union men to unload it and also to lessen the amount of transportation needed.

CONTINENTAL MINERS TO PREVENT EXPORTS TO BRITAIN

On May 2 a conference was held between Robert Williams, general secretary of the transport workers, and Edo Fimmen, president of the International Transport Workers' Federation, after which Mr. Williams said that Mr. Fimmen had given every guarantee that the Dutch, French, Belgian, German and Austrian mine workers were determined to prevent the export of coal to Great Britain. "Any attempt," said Mr. Williams, "to introduce foreign coal will lead to entire stoppage of work, and the National Union of Railway Men will refuse to handle any coal brought from overseas." Belgian coal however, has been arriving, and French officials have been conferring in London relative to such shipments from France.

On May 7 a manifesto was issued by the Transport Workers' Federation and the National Union of Railway Men announcing that the dockers have been instructed to refuse to handle in any way coal imported from abroad and that a call has been sent to the railroad men to refuse to move such coal if it is landed by "black-leg" labor. Bristol has placed an order in America for 80,000 tons of coal per day. The Glasgow docks are not handling a ton of sea-borne coal but not far away 100 men have been busy unloading coal from Wales, mined before the strike. This fuel was for the Caledonia Ry. When the railroad started to move the coal the signalmen refused to operate the switches.

On May 4, J. H. Thomas, general secretary of the National Union of Railway Men, left to attend the American Federation of Labor Convention as a fraternal delegate of the British Trades Union Congress. His departure does not appear to strengthen the idea that the Triple Alliance expects to function in this strike. He is reported to have declared that he expected the strike to end in a week.

While labor in general seems little disposed to back the mine workers, feeling doubtless that they are trying to get their rate of pay from a source denied to other workingmen—the National Treasury—the Joint Committee of the Labor Party, the National Labor Party Executive and the Parliamentary Committee of the Trades Union Congress on May 3 issued a manifesto urging organized labor to "defend its own future by rallying to the miners now."

The House of Commons on May 4 by a large majority adopted a resolution extending the government's regulatory powers and making new regulations for the restriction of the services of tramroads, pleasure steamers and lighting, and providing, if it seemed desirable, which apparently it is not, to change the daylight saving provision by putting the clock forward one more hour.

Breweries are no longer allowed coal, though some have enough on hand to run for some weeks. A shortage of beer,

with rationing of the precious fluid, is predicted. Six weeks of idleness at the mines has made unemployment general. On April 20 1,865,800 men were already on the Labor Exchange register, and the number is increasing. Train service is reduced to one half; dining cars and pullmans run no longer; trains run slowly and make more stops; permits are needed for travel to the Continent; social functions are being cancelled, private rooms at hotels are without their genial fires, street lighting is curtailed, electric advertising signs are dark and the public is asked to save water because it takes coal to pump it.

The King has given coal to the poor from his cellars at Windsor and those who are well-stocked are imitating his example. Factories run two or three days a week and then close down for lack of coal or raw material. Department stores lack important merchandise and cannot replenish it because the factories in many lines are idle. Trade unions' funds are rapidly being depleted by the granting of non-employment pay. To prevent revolution the defense force is being maintained, and to meet an extension of the strike the files of the emergency transport service are being kept open for additions.

Sewalls Point Coal-Analysis Plant to Begin Operation May 20

THE chemical analysis plant of the Sewalls Point Coal Exchange, said to be the largest and most comprehensive of its kind in the world, is almost ready for operation, officials of the exchange have announced. It is expected to be open for work by May 20.

J. S. Burrows, consulting engineer, is in Norfolk supervising the finishing touches on the installation. H. A. Goodman, representing the U. S. Bureau of Mines, will work in the plant and have charge of the chemical analysis. Tests will be made of coal coming from every mine served at this exchange, to determine whether or not the coal actually measures up to the specifications of the pool to which it has been assigned. If the product of any particular mine fails to meet the requirements its coal will have to be moved down to a lower grade.

This system has been in process of installation at the Virginian Ry. plant at Sewall's Point for several months. It will do away with the cumbersome methods of judging coal which have been heretofore in vogue, and will place coal classifications on a strictly scientific basis, leaving no possibility of doubt as to the qualifications of the commodity represented in the various pools.

Senator Elkins Urges Buying of Winter Fuel Now to Avert "Coal Famine" Later

IN A FORMAL statement, issued May 7, Senator Davis Elkins, of West Virginia, urged the public to lay in its winter supply of coal now instead of waiting until the cold months again are at hand. He said that upward of 200,000 miners were out of employment because of the lack of demand for coal and that their dependents were in distress.

Senator Elkins also declared that a sudden restoration of a market and an attempt to crowd the hauling of the bulk of the nation's coal into the autumn and winter months would place upon the railroads a burden which they were admittedly unable to discharge.

"That will simply mean," he added, "a repetition of the so-called 'coal famine' of last year, which was, *per se*, a car famine."

OPERATORS AND MINE WORKERS of Washington State met in Seattle, April 26, to discuss plans for a settlement of the mine strike, the invitation which brought about the meeting being extended by Ed. Clifford, director of the new State Department of Labor and Industries. The operators declare that they will revert to the rate of pay in force before the recent increase and for seven weeks the mine workers have refused to accept the rate offered. The latter naturally deny that they are on strike, it being the operators and not the mine workers who are trying to change the scale.

Industry's Stock of Coal, Though Diminishing, Remains At Safe Margin Because of Reduced Consumption

ADVANCE figures on stocks of railroad fuel compiled for the Geological Survey's preliminary report on consumers' stocks were published last week in *Coal Age*, page 834. Additional returns since received by courtesy of the American Railroad Association, which has undertaken to assemble the figures, confirm the preliminary results. The following table summarizes the reports for 319 railroads, which have been received to date, including some but not all of the large systems. It will be seen that from Jan. 1 to April 1 these 319 roads reduced their stocks by only 92,000 tons—barely 1 per cent. The stock remaining on April 1 was sufficient for three weeks' and three days' operation at the rate of consumption prevailing in the first quarter of the year. It therefore appears that while railroad fuel-coal purchases have seemed to the coal operator disappointingly small, the actual acceptances by the carriers have been sufficient to meet their current requirements, in view of their present reduced rate of consumption. It is clear, however, that railroad stocks are considerably below those in the latter half of 1918, or early 1919.

STOCKS, RECEIPTS AND CONSUMPTION OF BITUMINOUS COAL BY 319 STEAM RAILROADS, JAN. 1 TO APRIL 1, 1921

(In net tons)

	Stocks on hand, Jan. 1, 1921:	Receipts, Jan. 1—March 31	Consumption, Jan. 1—March 31	Total stock, Jan. 1
In cars	3,314,000			8,115,000
In stock piles, etc.	4,801,000			29,820,000
				29,912,000
Stocks on hand, April 1:				3,091,000
In cars				4,932,000
Total stock, April 1				8,023,000

STOCKS OF SOFT COAL AT 2,303 INDUSTRIAL PLANTS, OTHER THAN STEEL AND BYPRODUCT, JAN. 1 AND APRIL 1, 1921

(In net tons)

(Includes only those plants for which reports had been received by the U. S. Geological Survey up to April 26(a))

State	Number of Plants Reporting	Weekly Consumption	Week's and Day's Supply at Current Rate (b)		Tons on Hand (a)	Jan. 1	Apr. 1
			Jan. 1	Jan. 1			
Maine	27	13,247	178,068	156,964	13-3	11-6	
New Hampshire	34	3,930	99,235	65,607	25-2	16-5	
Vermont	37	1,892	34,161	24,816	18-1	13-1	
Massachusetts	278	46,067	838,828	578,948	18-1	12-4	
Connecticut	75	17,526	351,991	255,330	20-1	14-4	
Rhode Island	56	6,564	120,980	69,825	18-3	10-5	
New York	159	66,618	800,777	647,559	12-1	9-5	
New Jersey	106	33,635	439,895	359,284	31-1	10-5	
Pennsylvania	120	87,256	565,745	529,933	6-3	6-1	
Maryland	31	8,850	53,103	35,658	6-0	4-1	
Delaware	25	3,079	34,102	29,827	11-1	9-5	
District of Columbia	10	1,023	7,336	5,167	7-2	5-1	
West Virginia	43	15,717	39,904	40,758	2-4	2-4	
Ohio	127	62,035	435,727	291,559	7-1	4-5	
Indiana	102	56,806	372,017	328,318	6-4	5-5	
Illinois	136	97,584	485,257	309,686	4-6	3-1	
Michigan:							
Northern Peninsula	19	15,065	380,709	197,834	25-2	13-1	
Southern Peninsula	92	32,049	410,991	279,884	12-6	8-5	
Wisconsin	80	27,600	325,791	211,131	11-6	7-4	
Minnesota	59	13,219	105,256	47,692	7-6	3-4	
Iowa	29	14,976	58,798	45,447	3-6	3-1	
North Dakota	6	883	1,956	1,169	2-1	1-2	
South Dakota	2	1,195	4,148	4,610	3-3	3-6	
Nebraska	11	6,323	17,206	14,705	2-5	2-2	
Virginia	33	10,483	106,427	71,251	10-1	6-6	
North Carolina	48	7,300	78,767	59,033	10-6	8-1	
South Carolina	41	4,229	41,562	35,168	9-6	8-2	
Georgia	31	4,559	50,384	32,296	11-1	7-1	
Florida	7	287	2,254	2,578	7-6	8-6	
Kentucky	28	7,925	35,343	40,966	4-3	5-1	
Tennessee	62	10,750	73,337	63,269	6-6	5-6	
Alabama	35	4,890	52,728	40,061	10-5	8-1	
Mississippi	23	1,100	8,993	5,561	8-1	5-1	
Missouri	81	36,972	181,957	110,091	4-6	2-6	
Kansas	41	12,137	40,134	28,653	3-2	2-3	
Oklahoma	16	938	34,808	26,591	37-1	28-2	
Arkansas	21	1,256	8,889	8,566	7-1	6-6	
Louisiana	2	129	714	812	5-4	6-2	
Texas	39	4,079	12,203	4,170	2-6	1-1	
Colorado	31	6,905	36,438	26,465	5-2	3-6	
New Mexico	4	1,903	27,299	19,153	14-2	10-1	
Arizona	7	2,614	20,058	14,580	7-5	5-4	
Utah	27	7,470	54,305	41,508	7-2	5-4	
Nevada	9	2,862	13,298	8,673	4-5	3-1	
Wyoming	4	85	625	477	7-2	5-4	
Montana	13	10,375	72,817	50,976	7-1	4-6	
Idaho	14	604	5,392	3,920	8-6	6-3	
Washington	14	2,997	26,877	16,773	8-6	5-4	
Oregon	5	364	8,002	4,139	21-6	11-3	
California	3	14	215	118	15-2	8-3	
Grand totals	2,303	776,369	7,155,807	5,247,559	9-1	6-5	

The preceding table showed stocks in terms of weeks' supply at the present rate of consumption. It is likely to be misleading to make comparisons of weeks' supply on two different dates because of changes in the rate of consumption. The following table, prepared by F. G. Tryon, compares the actual tonnage on hand at 2,209 industrial plants (other than steel and byproduct) with the tonnage which the same plants had on three other dates.

TONS OF SOFT COAL ON HAND AT 2,209 INDUSTRIAL PLANTS, APRIL 1, 1921, COMPARED WITH WHAT SAME PLANTS HAD IN 1919 AND 1920

State	Number of Identical Plants	Tons in Stock April 1, 1921	Increase or Decrease, April 1, 1921, as Compared with (c)		
			Jan. 1, 1921	June 1, 1920	April 1, 1919
Maine	24	156,059	—	20,343	+ 65,393 + 4,922
New Hampshire	33	65,437	—	33,209	+ 37,429 + 25,574
Vermont	37	24,816	—	9,345	+ 13,551 + 3,481
Massachusetts	261	557,049	—	254,747	+ 285,768 + 155,741
Connecticut	70	255,044	—	96,181	+ 165,382 + 1,318
Rhode Island	55	69,781	—	50,759	+ 17,245 + 53,885
New York	148	587,298	—	152,380	+ 325,334 + 116,670
New Jersey	98	353,139	—	76,934	+ 133,723 + 22,647
Pennsylvania	114	522,459	—	34,708	+ 207,881 + 68,988
Maryland	30	35,418	—	17,485	+ 1,829 + 1,494
Delaware	24	29,636	—	4,275	+ 9,458 + 3,888
District of Columbia	10	5,167	—	2,169	+ 3,470 + 430
West Virginia	44	40,758	+	854	+ 2,803 + 6,744
Ohio	121	288,076	—	142,935	+ 45,309 + 81,400
Indiana	100	319,361	—	41,690	+ 119,430 + 32
Illinois	134	304,839	—	172,197	+ 58,526 + 155,989
Michigan:					
Northern Peninsula	19	197,834	—	182,875	+ 4,467 + 290,309
Southern Peninsula	85	267,321	—	120,564	+ 135,632 + 9,998
Wisconsin	79	158,479	—	106,286	+ 69,481 + 21,209
Minnesota	58	46,416	—	57,519	+ 2,674 + 360
Iowa	28	45,260	—	12,638	+ 11,164 + 16,810
North Dakota	6	1,169	—	787	+ 180 + 801
South Dakota	2	4,610	+	462	+ 1,517 + 819
Nebraska	11	14,705	—	2,501	+ 3,163 + 2,178
Virginia	31	65,342	—	30,555	+ 11,351 + 26,243
North Carolina	48	59,033	—	19,734	+ 13,647 + 28,108
South Carolina	41	35,167	—	6,395	+ 7,727 + 6,459
Georgia	28	25,416	—	5,524	+ 10,639 + 5,793
Florida	7	2,578	+	324	+ 1,084 + 691
Kentucky	26	20,778	—	2,765	+ 3,315 + 1,010
Tennessee	60	58,119	—	7,591	+ 22,346 + 927
Alabama	33	39,811	—	12,547	+ 11,151 + 196
Mississippi	23	5,561	—	3,432	+ 34 + 246
Missouri	79	110,008	—	71,797	+ 22,788 + 22,057
Kansas	39	28,439	—	11,122	+ 13,785 + 10,937
Oklahoma	15	26,591	—	8,217	+ 554 + 2,080
Arkansas	21	8,566	—	323	+ 3,908 + 2,720
Louisiana	2	812	+	98	+ 546 + 32
Texas	36	4,170	—	8,033	+ 203 + 997
Colorado	31	26,465	—	9,973	+ 12,292 + 28,911
New Mexico	4	19,153	—	8,146	+ 3,474 + 13,276
Arizona	7	14,580	—	5,478	+ 1,683 + 1,687
Utah	27	41,508	—	12,797	+ 5,670 + 5,345
Nevada	10	8,673	—	4,625	+ 3,248 + 16,565
Wyoming	4	477	—	148	+ 4,990 + 316
Montana	13	50,976	—	21,841	+ 19,150 + 9,334
Idaho	14	3,920	—	1,472	+ 1,404 + 718
Washington	14	16,773	—	10,104	+ 5,939 + 8,509
Oregon	3	81	—	56	+ 6 + 5
California	2	81	—	79	+ 155 + 247
Total	2,209	5,023,309	—	1,853,543	+ 1,771,750 + 988,252

(a) As this table includes ninety-four plants not included in the list of 2,209 identical plants, the figures differ slightly from those in the following table.

(b) Calculated at average rate of consumption during January, February and March, 1921. As consumption was perhaps 22 per cent below normal during this period on account of the business depression, the figures of weeks' supply appear larger than they would if business were active. At the average rate of consumption in March, April and May, 1920, the stock on hand Jan. 1, 1921, would have been 7 weeks 2 days, and on April 1, 1921, 5 weeks 2 days.

(c) Plus sign denotes increase; minus sign, decrease.

Judge Gives Long Sentences to Dynamiters Of Coal Property on Willis Branch

JUDGE EARLY, of the Circuit Court of Fayette County, West Virginia, disregarded the jury's recommendation of clemency and gave Lee Donnel, Clarence Donnel, Robert Ratliffe and John Kidd terms of seven years in the state penitentiary. On April 30 they were found guilty of having in January dynamited the property of the Willis Branch Coal Co., at Willis Branch, W. Va.

The jury had recommended the minimum sentence, which is two years. When the Court pronounced sentence, attorneys for the defendants announced that they would ask for a new trial. Some of the defendants have long been regarded as ringleaders in the trouble at Willis Branch, which has covered a period of two years.



Production and the Market

Weekly Review

IS THERE another bituminous coal shortage impending? It is rather significant that in the same week C. H. Markham, president of the Illinois Central R.R., and Senator Elkins sound warnings of a coal shortage to come. Mr. Markham is putting out his good money for advertising space in the newspapers in the Middle West, warning the public of an impending coal shortage, because, he says, "as one of the largest coal-carrying roads in the Middle West" he considers it a duty to sound this warning. He plainly says the country is headed for a serious bituminous coal shortage. At the same time Senator Elkins, in a statement issued from Washington, is emphatic in his declaration that "sudden restoration of the market, and an attempt to crowd the hauling of the bulk of the nation's coal into the autumn and winter months will place upon the railroads a burden which they are admittedly unable to adequately discharge."

INDIVIDUAL ACTION ONLY CAN AVERT SHORTAGE

Sober thought indicates that this "impending coal shortage" will materialize in just the degree to which industry suddenly begins to hum. There is not the least excuse in the world for the manager of any industrial plant to suffer from a lack of coal this year. He has but to buy his coal and maintain a storage sufficient

to give him ample protection, which may be sufficient for but a week if he is within sight of the coal mines and it may be five months if he is in Wisconsin or northern Maine. Collectively the country can do nothing to prevent a shortage. Individual action alone will prevent trouble.

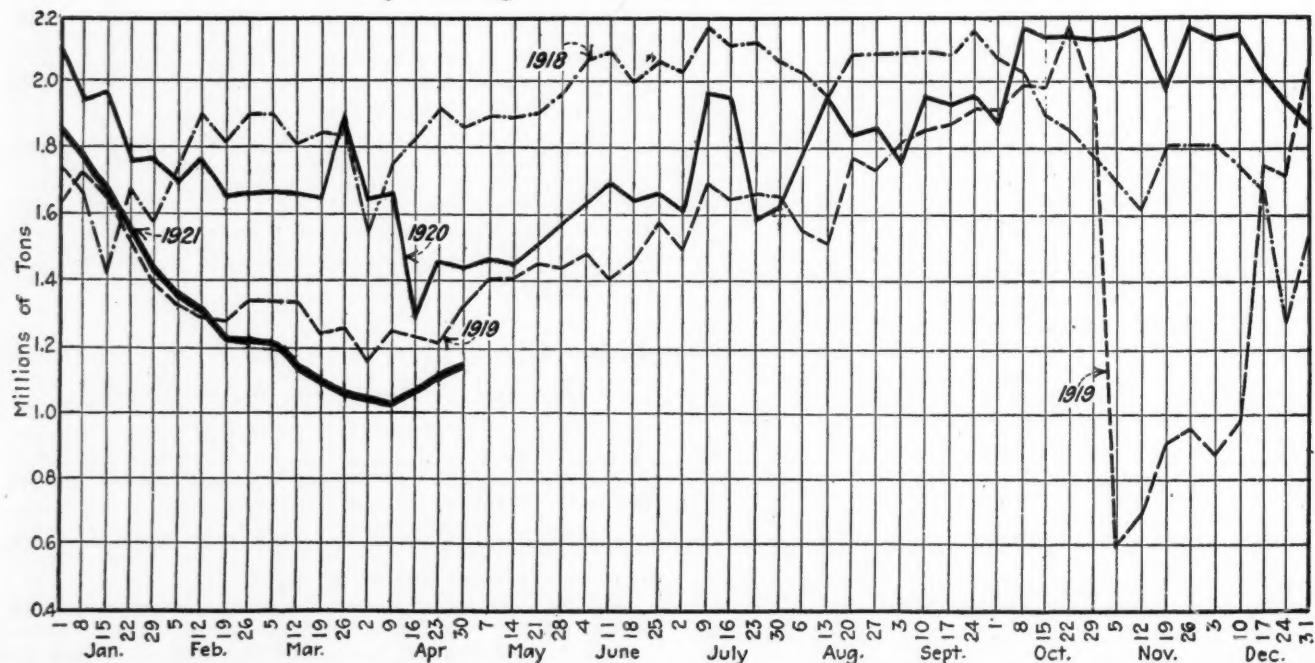
COAL AGE INDEX IS UNCHANGED

Production of bituminous coal is still continuing to increase. Prices are practically stationary. *Coal Age* index is 104, unchanged from the preceding week. Better prices in some sections are offset by a slightly increased amount of distress coal, or by sales which are being urged on buyers at figures somewhat lower than have prevailed recently. Larger production and better domestic demand are softening the steam market, and extremely attractive prices are being quoted to move immediate lots of "resultant" coal.

The contract market is still dormant, as the quotations are too far above spot figure to interest the buyers. Producers hold firm to their prices, however, and refuse to close on yearly business unless granted a figure which carries some profit at least.

Additional reports to the Geological Survey of the stocks of soft coal held by the railroads on April 1, 1921, practically confirm preliminary figures reported

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

last week. From Jan. 1 to April 1 this year railroads reduced their stocks from 8,115,000 net tons to 8,023,000, only 92,000 tons, or barely 1 per cent. April 1 stocks were sufficient for twenty-four days' operation at the consumption rate prevailing during the first quarter of 1921. Bituminous stocks on hand April 1, 1921, at 2,303 industrial plants other than steel and byproduct plants were 5,247,559 tons, a decline of over 1,900,000 tons from stocks held by the same plants on Jan. 1, 1921. Calculated at the first quarter's consumption rate, the tonnage on hand April 1 was equivalent to requirements for six weeks and five days. With the lowered rate of current consumption these appear larger than they would if business were more active. Any upturn of industrial activity would soon render these stocks uncomfortably small.

LAKE'S DEMURRAGE TARIFF IS RESTORED

Reduction in rail freight rates on Lake cargo coal is some stimulus to those fields shipping to the lower ports. Large tonnages have gone forward recently to such an extent that in the eastern Ohio field a slight car shortage has occurred, caused by so many cars being held under load at Lake Erie ports. Early in the month there were some 12,500 loaded cars awaiting dumping. The Lakes Demurrage Tariff, which was taken off at the start of the season to stimulate Lake coal shipments, has just been restored, and demurrage penalties therein will cause a decline in movement of Lake coal from the mines, at least until vessels become more plentiful. At present, the iron ore and grain markets are in no shape to provide return cargoes down the Lakes and it will probably be some time before boats will be available in sufficient numbers to satisfy coal producers.

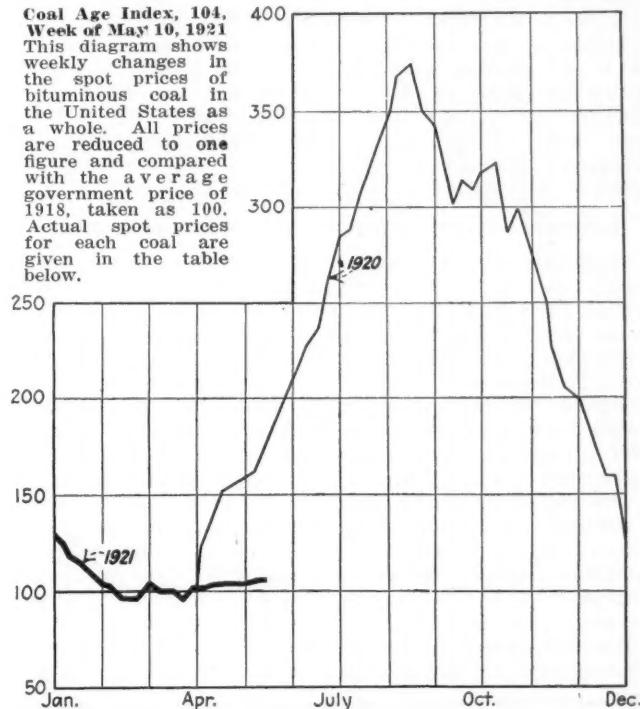
The Northwest trade is none to anxious to receive heavy shipments for storage, and the head of the Lakes docks are reflecting this attitude in their orders to the mines. The trade is sluggish reviving, even with re-

duced freights—all-rail receipts are dwindling and a poor season seems to be in prospect. While early dumpings for the season have been heavier than for several years, the large part of this tonnage has gone to the storage docks of mine affiliations and actual outright purchases have been light. Duluth cargo receipts, season to April 30, were 197,500 tons—85,000 anthracite and 112,000 bituminous. April shipments to the interior from the Duluth docks were only slightly more than one-half of those for April, 1920.

Anthracite production is being sustained by a healthier domestic demand and steam sizes are also in bet-

Coal Age Index, 104.

Week of May 10, 1921
This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table below.



Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

	Market Quoted	Mar. 1920	Apr. 12 1921	May 3 1921	May 10 1921†
Low-Volatile, Eastern					
Pocahontas mine run.....	Columbus.....	\$2.35	\$3.35	\$3.35	\$3.50
Pocahontas lump.....	Columbus.....	2.60	5.50	5.40	5.25@ 5.50
Pocahontas mine run.....	Chicago.....	2.35	3.85	4.00	3.50@ 4.50
Pocahontas lump.....	Chicago.....	2.60	5.00	5.00	4.50@ 5.50
*Smokeless mine run.....	Boston.....	6.00	6.00	6.00@ 6.25	
Clearfield mine run.....	Boston.....	2.95	2.35	2.35	2.00@ 2.65
Somerset mine run.....	Boston.....	2.95	3.05	2.95	2.25@ 3.60
Pool 1.....	New York.....	2.95	3.40	3.65	3.50@ 3.75
Pool 1.....	Philadelphia.....	2.95	3.40	3.25	
Pool 1.....	Baltimore.....	2.95	3.15	3.20	3.25
Pool 9.....	New York.....	2.95	2.80	2.65	2.75@ 3.00
Pool 9.....	Philadelphia.....	2.95	3.25	2.85	2.90
Pool 9.....	Baltimore.....	2.95	3.00	2.95	3.00@ 3.15
Pool 10.....	New York.....	2.95	2.35	2.55	2.80@ 2.80
Pool 10.....	Philadelphia.....	2.95	2.75	2.65	2.70
Pool 10.....	Baltimore.....	2.95	2.50	2.45	2.50@ 2.60
Pool 11.....	New York.....	2.95	2.15	2.10	2.00@ 2.25
Pool 11.....	Philadelphia.....	2.95	2.15	2.30	2.45
Pool 11.....	Baltimore.....	2.95	2.25	2.30	2.25@ 2.35
Pool 71.....	New York.....	2.95	3.15	2.85	2.85@ 3.15
Pool 71.....	Philadelphia.....	2.95	3.15	3.00	3.00
Pool 71.....	Baltimore.....	2.95	3.00	2.95	3.10@ 3.15
High-Volatile, Eastern					
Pool 34 (54-64).....	New York.....	2.50	1.85	2.15	<i>1.80@ 2.15</i>
Pool 34 (54-64).....	Philadelphia.....	2.50	1.85	1.95	2.00@ 2.15
Pool 34 (54-64).....	Baltimore.....	2.50	2.10	2.05	2.05@ 2.15
Pittsburgh mine run.....	Pittsburgh.....	2.35	2.25	2.25	<i>1.90@ 2.25</i>
Pittsburgh sc'd gas.....	Pittsburgh.....	2.35	2.85	2.85	<i>2.50@ 2.75</i>

	Market Quoted	Mar. 1920	Apr. 12 1921	May 3 1921	May 10 1921†
Midwest					
Kanawha mine run.....	Columbus.....	\$2.70	\$2.25	\$2.00	\$2.25
Kanawha lump.....	Columbus.....	2.95	3.50	3.25	3.50
Hocking mine run.....	Columbus.....	2.50	2.25	2.00	2.10@ 2.25
Hocking lump.....	Columbus.....	2.75	3.25	3.05	3.25
Pitts. No. 8 mine run.....	Cleveland.....	2.35	2.25	2.20	2.15@ 2.25
Pitts. No. 8 lump.....	Cleveland.....	2.60	3.50	3.25	3.10@ 3.40
South and Southwest					
Big Seam mine run.....	Birmingham.....	2.45	3.05	2.95	2.85@ 3.10
Big Seam lump.....	Birmingham.....	2.75	3.60	3.70	3.40@ 4.00
S.E. Ky. mine run.....	Louisville.....	3.00	2.65	2.60	2.50@ 2.75
S.E. Ky. lump.....	Louisville.....	3.25	3.60	3.75	3.75@ 4.00
Kansas mine run.....	Kansas City.....	3.50	4.40	4.40	4.25@ 4.50
Kansas lump.....	Kansas City.....	4.00	5.00	5.00	5.00

* Gross tons, f.o.b. vessel, Hampton Roads.

† Advance over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	May 3, 1921	May 10, 1921†
Broken New York	\$7.20@ \$7.50	\$7.20@ \$7.75	\$7.45@ \$7.75
Broken Phila.....	7.35	7.35	7.35
Egg New York	7.20@ 8.00	7.20@ 7.75	7.45@ 8.35
Egg Phila.....	7.35	7.60	7.35
Stove New York	7.50@ 8.00	7.50@ 8.10	7.70@ 8.35
Stove Phila.....	7.70	7.85	7.70
Chestnut New York	7.50@ 8.00	7.50@ 8.10	7.85@ 8.35
Chestnut Phila.....	7.65	7.85	7.65
Pea New York	5.25@ 5.75	5.75@ 6.15	5.26@ 5.60
Pea			5.75@ 6.10

	Market Quoted	May 3, 1921	May 10, 1921†
Pea Phila.....	6.00	\$5.50	\$6.00
Buck No. 1 New York	\$3.25@ \$3.75	3.50	3.00@ 3.75
Buck No. 1 Phila.....	3.25@ 3.50	3.50	3.25
Rice New York	2.50	2.50	2.50
Rice Phila.....	2.50	2.50	2.50
Barley New York	1.50	1.50	1.10@ 1.50
Barley Phila.....	1.50	1.25	1.50
Birdseye New York	2.50	2.50	2.50

† Advances over previous week shown in **heavy type**, declines in *italics*.

ter position. Adherence to the increased schedule for May has apparently warned householders that hopes for lower prices are futile and in some sections the storage program is almost normal. Independent production is being maintained, if not increased, although the premium obtained over company circular is small.

BITUMINOUS

Soft coal production continued to climb slowly during the last week of April. According to the Geological Survey 6,921,000 net tons were mined, an increase of 101,000 tons, or 1.5 per cent, as compared with the preceding week. Loadings on Monday, May 2, were 22,710 cars, which is a decline from the figure for the preceding Monday, probably due to the miners' observance of May Day.

In spite of the improvement in production, the rate of output is still lower than for any period since April, 1914, except during the strike of 1919. Consumption and exports are doubtless in excess of the current production of 6,900,000 tons weekly, therefore it is apparent that the draft on consumers' stocks still continues. This draft amounted to 8,000,000 tons during the first quarter of 1921.

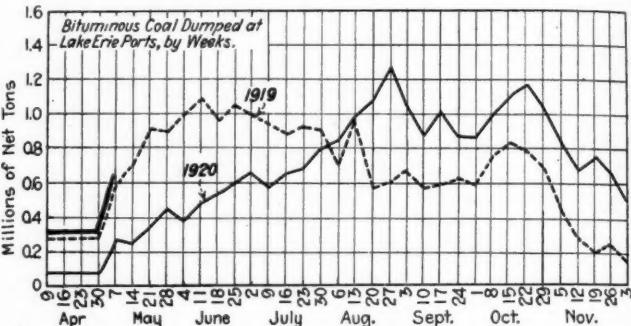
BUY-EARLY CAMPAIGN STIMULATES DOMESTIC MARKET

Production has been much improved in the Middle West section, where an active campaign, to stimulate domestic buying for storage has been going on. Weekly production in the northern and middle Appalachians has shown a steady improvement; from the beginning of April the output climbed from 3,216,000 net tons for the week ended April 2 to 4,062,000 for the period ended April 23. "No-market" losses for the country as a whole stood at 55.8 per cent of full-time capacity for the week ended April 23, an improvement of about 3 per cent over the preceding week.

One encouraging sign has developed in the last few days—while buyers are not taking an appreciably heavier volume of coal they are displaying more interest in quotations, both spot and contract. This is only natural, as the decline of consumers' stocks, while very gradual, is causing the buyer to keep more actively in touch with the market. Some consumers apparently are withholding the making of purchases in the unfounded hope that freight rates are due for

an early reduction. There is no authority for this belief, but even if reduction were contemplated they could hardly be put into effect in time to care for any tonnage before the expected autumn rush may develop.

Lake coal dumpings during the week ended May 9 are reported by the Ore and Coal Exchange at 595,825 net tons of cargo coal and 19,255 tons of fuel. Combined dumpings for the season now stand at 1,835,080 net tons, as compared with 594,121 tons for the same period in 1920.



There was a distinct export revival as April came to a close. Hampton Roads dumpings for that month for all destinations were 1,230,000 gross tons, 300,000 tons more than during March. Dumpings for foreign accounts during the last week of April amounted to 322,169 net tons, nearly three times as much as during the week ended April 2 and at a weekly rate greater than at any time since the autumn of 1920, when foreign business was very heavy. The prolongation of the British strike is causing England's stock of coal to diminish rapidly, and American business is benefiting thereby. Bunkerage markets are active, as ships are now coaling with American fuel for the round trip. British dockers have just been instructed to refuse to handle in any way coal imported from abroad and instructions have been given British railroad men to refuse to move such coal, if it is landed. Strict adherence to this union order may have some effect on the exportation of American coal to Great Britain.

New England all-rail shipments for the week ended April 30 were 2,474 cars, 10 per cent more than during the week preceding. A better trade feeling is apparent in that section; buyers seem to be getting over their indifference although the volume of new business, either spot or contract, is still very light. The effect of the seamen's strike is reflected in the position of smokeless coals in that locality, as not much coastwise trade is now moving.

ANTHRACITE

Production for the week ended April 30, as estimated by the Geological Survey, was 1,945,000 net tons, an increase of 42,000 tons over the preceding week. Retail buying is proceeding satisfactorily in the Middle West and there is some activity in the Northwest. Baltimore reports a sluggish domestic market, while in New York the trade is brisk. New England business is picking up slightly and receipts also are improving.

Independent prices are limited to within about 50c. of company schedules and all sizes are in fair demand with the exception of pea, which at times is sold at slight concessions in order to move the coal promptly.

COKE

Beehive coke production in the week ended April 30 was 72,000 net tons, a decrease of 2,000 tons from the preceding week. The depth of the present depression is indicated by the fact that the week's output was hardly 20 per cent of that of the corresponding period of 1920. Cumulative calendar year production is 2,846,000 net tons, about 38 per cent of that of 1920. The Connellsburg market is practically at a standstill and most operations are idle. Spot furnace is quoted at \$3.50 and foundry \$5@\$5.50. With the recent announcement of the Steel Corporation that it would reduce wages it is expected that its subsidiary, the Frick company, will soon put into effect a reduction of wages in the Connellsburg region.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY
(NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921		1920	
	Week	Calendar Year to Date	Week	Calendar Year to Date (a)
April 16 (b).....	6,528,000	115,271,000	7,563,000	153,553,000
Daily average... .	1,088,000	1,284,000	1,261,000	1,701,000
April 23 (b).....	6,820,000	122,090,000	8,523,000	162,076,000
Daily average... .	1,137,000	1,274,000	1,420,000	1,683,000
April 30 (c).....	6,921,000	129,012,000	8,928,000	171,004,000
Daily average... .	1,154,000	1,267,000	1,488,000	1,672,000

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision.

ANTHRACITE

1921 1920

	Week	Calendar Year to Date	Week	Calendar Year to Date
April 16 (b).....	1,885,000	26,497,000	1,249,000	24,710,000
April 23.....	1,903,000	28,400,000	1,663,000	26,373,000
April 30 (c).....	1,945,000	30,345,000	1,841,000	28,214,000

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision.

BEEHIVE COKE

	Week Ended	April 30	April 21	May 1	1921	1920 (c)
1921 (a)	1921 (b)	1921 (b)	1920	to Date	to Date	to Date

(a) Subject to revision. (b) Revised from last report. (c) Less 2 days' production during New Year's week to equalize number of days covered for last two years.

Reports From the Market Centers

New England

BOSTON

Industrial Conditions Show Faint Improvement—No Genuine Contract Call—Slight Increase in Overseas Business—Strike of Marine Workers a Factor in Smokeless—Domestic Size Anthracite in Good Request.

Bituminous—In textiles and certain special lines there are beginning to be much better sales and it is apparent there is more confidence industrially than a month or two ago. Consumers who were flouting the idea of buying fuel are now mildly interested and in some cases are querying whether after all this may not be an advantageous time to buy. Shippers have made every inducement they dare offer throughout these dull weeks, and it may be we shall soon see a turn in the long hard road we have been traveling since last fall. There is a better trade feeling, and more than likely there will be quiet buying later in the month.

Thus far, however, little business has developed on contract. The consumers feel there is still far too much spread between spot quotations and those for extended delivery, but producers show no sign of modifying their position in this respect. Interests, who after most strenuous efforts to sell coal, have been able to operate but one or two days a week decided long ago the minimum basis on which they could afford to run. A great many operations are completely shut down. It is surprising to see the number of large enterprises that decided definitely not to mine coal unless the output could be sold to advantage. This is one among several reasons why the contract market lags.

The continued labor trouble in England is having more effect upon the seaboard market. Liners and other steamers are coaling on this side for the round trip, and while the tonnage is not heavy, it amounts to something in a month's time and may well be a factor in turning the scale.

The strike of engineers, firemen, oilers and deckhands on tugs and steamers has given more or less concern the past week. The centre of the difficulty seems to be at Hampton Roads, although crews have left ships at other ports. Few believed the trouble could be at all serious in the present posture of shipping, with so many marine workers unemployed, but already it has made a difference in the receipts of smokeless. Several boat owners have been able to keep their craft in operation with pickup crews or by having some special understanding with their men.

Anthracite—There is no pronounced change in the demand for domestic sizes. Egg, stove, and chestnut are all in good request, with the accent on stove, but on the steam sizes there is practically no demand whatever. The marine strike is being used as an argument with the public and the retailers are beginning to swing into their usual spring stride.

The expected advance in prices May 2 was so well discounted that it occasioned almost no comment. Retailers have about concluded it is prudent for them to take on coal as fast as they can store it, for there are ample possibilities of upset between now and fall. The advances in all-rail rates effective this month and on June 1 applying to Boston points is an additional reason for hurrying coal forward to the large number of dealers in the Boston metropolitan district.

A mild sensation was caused early last week by the announcement that the Hudson Coal Co. from May 1 would deal directly with retailers along the line of the Boston & Maine east of Fitchburg, Mass., who for a great many years have purchased through one of the important Boston factors. From present indications the producing company is relinquishing a certain trade it has had via the Edgewater, N. J., piers along the coast to New England points and will doubtless turn a part at least of this tonnage into all-rail territory.

Tidewater—East

BALTIMORE

Export Situation Improves Despite Shipping Strike—Home Demand Still Drags—Anthracite Continues on Old Selling Basis.

Bituminous—After a dead half month at the outset of April there was a spurt in export movement and the month saw a total loading on foreign account of 98,442 tons cargo and 10,536 tons bunker. It is of note that three of the cargoes went to English ports. Italy took the largest total, some 40,000 tons cargo. The shipping strike did not hit the situation to any degree as there has recently been little coal exporting in American bottoms.

The home demand is still draggy. There is no increase in the matter of contracting, despite the repeated warnings of both coal and transportation men that business is inviting disaster and high prices for coal this fall by refusing to distribute the movement under at least a partial buy and order early plan. Best gas and steam coals are still available at \$3@\$3.25 in the

spot market, and \$3.15@\$3.50 on contract over the year. Failure of these figures to tighten shows how the market lags. In spot selling there is even a greater cut in bunker business, the amount of free coal at times encouraging sharp competition.

At the B. & O. piers at present are daily reserves of some 900 cars; at Canton some 400 cars, while the pile-up at the new Western Maryland pier at Port Covington is now around 700 cars.

Anthracite—Lack of orders and appreciation on the part of the public continues. The only change for dealers is in the jump in wholesale prices, which the trade has decided to absorb for the present.

The company advance for May of ten and fifteen cents on some grades, and independent advances ranging 15 to 40c., caused a meeting of the retail exchange to consider the situation. The result is that the retail trade will absorb the wholesale advance this month, unless other increases force a change of attitude.

NEW YORK

Anthracite Domestic Orders Heavy—Steam Coals Easier—Rumored Freight Cut a Factor in Bituminous Situation—English Strike of Little Interest—Demand Easy.

Anthracite—The market has settled down and operators find their books well filled with orders for all the egg and stove they can produce. Chestnut and pea, which nearly always have been hard to move in this market, are causing some worry to many shippers. The large companies are not finding it so difficult to move these coals but some independents find it necessary to make concessions when desirous of reducing their supply of pea coal.

The present heavy demand is expected to continue throughout the month and well into June. Wholesale dealers are well booked ahead and many of the individual operators have reopened their mines. Dealers are satisfied with their present business but dislike to talk of what might be expected next fall and winter unless the public takes in its winter fuel this summer.

Independent producers advanced their mine prices 25c. @75c. for egg, stove and chestnut on May 1. They are heavily booked for stove and egg and so far have had little trouble in keeping chestnut on the move.

The increase in the number of collieries working has resulted in the market becoming burdened with steam coals. Buckwheat is holding firm, and rice is fairly strong, while barley is slipping. Some shippers are receiving inquiries regarding contracts for barley. Current quotations for company and independent coals, per gross ton, are reported in the Weekly Review.

Bituminous—Buyers seem to be marking time and operators are looking forward to a more active market shortly. Inquiries have been notably in evidence regarding contracts for ship-

ments from July 1, 1921, to April 1, 1922. Operators are not taking much notice of these, preferring to take chances with the open market, many of them having booked orders for shipments ranging over long periods.

The rumor that there is to be reduction in freight rates will not down and many buyers, who it is believed would under ordinary conditions take advantage of the present quotations, are said to be holding off in anticipation of a cut.

Bunker demand is a trifle more active. So far there has been no considerable delay because of the marine strike. Vessels have sailed for the most part on time, no delay being attributed to the lack of coal.

Industrial consumers have not returned to the buyers' market. Some intimate that they will not be ready to buy for six months, but it is expected many will be running to cover before that time. Coal at the piers is quoted at a wide range, about as follows: Pool 1, \$6.25@\$6.40; Pool 9, \$6.10@\$6.25; Pool 19, \$5.75@\$6; Pool 71, \$6.15@\$6.25; Pool 11, \$5.25@\$5.50, and Pool 18, \$5.25@\$5.40.

BUFFALO

Shippers Bidding Against Each Other—Bituminous Still Seeking Lower Price Levels—Anthracite About Normal.

Bituminous—Shippers complain that they are bidding against each other, just as consumers were during the bulge last fall. One shipper undertook to sell a block of smokeless to a new customer, but the shipper who formerly had the business at once cut the price and he had to meet it. Then, when he tried to make a further sale, he was told that the other man had cut still lower. So the problem whether to run or not continues. In fact, as the market slackens the difficulty as to going on increases.

The manufacturing world does not show any new activity. A certain percentage of the factories move at a slow pace while many are idle. Some hopeful shippers are looking for a stir in the demand by June, but the rule is to give up all prediction and wait till the change comes.

Prices are hardly as high as formerly. About \$3.25 is high enough for Youghiogheny gas lump and while Pittsburgh steam lump may still be quotable at \$3, No. 8 is down to \$2.75 and Allegheny Valley mine run \$2.50. Slack has been a trifle stronger on account of little lump being made, and is quotable at \$2.25 for gas and \$2 for steam.

Anthracite—Shippers and retailers are uniting in local advertisements, urging consumers to lay in their supplies now to avoid a shortage next winter, unless the mines are kept at work steadily.

The fact that the Lake trade is taking care of a large amount of coal and that all the lake-shipping companies are active, with at least one that does not often go into it, shows that coal is plentiful, though the general output

is about on the average. Loading to the Lake trade is brisk, the amount cleared for the week ended April 30 being 125,521 net tons, of which 55,221 tons were for Chicago, 28,500 for Duluth and Superior, 26,000 for Milwaukee, 9,000 for Sheboygan and 6,800 tons for Waukegan. The rate of freight has not yet been made.

Coke—Jobbers report that the market is off a trifle and advise a reduction of at least 25c. on quotations.

HAMPTON ROADS

Revival in Exports—Prices Not Advanced—Seamen's Strike Fails to Halt Loadings.

Dumpings for the month of April reached a total of 1,230,000 tons, an increase of 300,000 tons over the previous month. Much of this increase was due to dumpings during the last few days of the month, when vessels cleared with feverish haste in anticipation of the seamen's strike.

One of the unusual features of the increased activity, however, has been the steadiness of the market. Prices have not advanced noticeably over the \$6.50-mark for Pools 1 and 2, although in isolated cases coal reached \$6.75. Some coal was sold at \$6.25.

Coal continues to be poured into Gibraltar "for orders," taken to mean that it will ultimately either reach England or England's dependencies. Accumulations at Tide have increased, while vessel tonnage has noticeably decreased. Ships are getting easy dispatch, many of them entering the port and departing with cargoes in the space of twenty-four hours.

Activities at the piers for the week ended May 5 were as follows:

C. & O. piers, Newport News—	
Cars on hand.....	2,207
Tons on hand.....	110,010
Cars dumped month of April.....	5,992
Tons dumped month of April.....	321,683
Cars dumped May 1 to 4 incl.....	1,493
Tons dumped same period.....	80,825
Tonnage waiting.....	24,020
N. & W. piers, Lamberts Point—	
Cars on hand.....	1,235
Tons on hand.....	64,122
Cars dumped month of April.....	6,321
Tons dumped month of April.....	550,000
Cars dumped May 1 to 4, incl.....	785
Tons dumped same period.....	50,190
Tonnage waiting.....	9,125
Virginian Ry. piers, Sewalls Point—	
Cars on hand.....	1,238
Tons on hand.....	52,300
Cars dumped month of April.....	8,470
Tons dumped month of April.....	423,490
Cars dumped May 1 to 4 incl.....	1,169
Tons dumped same period.....	58,460
Tonnage waiting.....	55,100

PHILADELPHIA

May Anthracite Prices Increased—Retail Prices Unstable—Steam Sizes Unimproved—Bituminous Quiet—Inquiries Increase—Spot Prices Unchanged.

Anthracite—Both company and individual producers, having fully settled on May prices, the consumer has become more convinced that these are at the lowest level for the season and ordering continues good. One of the biggest producing companies still maintains its position in not having made any spring reduction and at this time its prices are about on a level with the more conservative independent shippers.

Cut prices on the quiet are the rule and the eagerness displayed for business was shown in prices quoted for school coal, awards of which were made this week. For the past several years the big companies took this business direct, but this time they were shut out by the lower bids of the retailers. Some of the low prices were as follows, per gross ton delivered in cellars: Pea \$8.38, egg \$11.01 and buckwheat \$6.88. How deeply the margin of profit was cut can be seen when it is considered that the quoted retail price of pea to the consumer is \$11 and egg \$13.50.

Stove continues to be the storm point of all demand and it is simply out of the question for the dealers to expect to get all they want of this size. With the independents there has been some indication of slowness at times with nut, but this is not at all serious. The real troublesome size is pea coal. Dealers' yards continue to show fair stocks, especially of pea, and many of them are taking this in more to assure a supply of the larger sizes than from any present need.

Steam sizes are slow, although buckwheat with the companies is moving in fair volume. Mine prices per gross ton are shown in the Weekly Review.

Bituminous—The trade, while quiet, displays some signs of improvement, principally in a slight increase of inquiries. The buyer seems now to be shopping around, as the greater number of inquiries fail to produce business. Some of the larger users are seeking blocks of from 10 to 30 cars of coal and often a price 10c. @25c. lower than the market is quoted.

There has been no appreciable increase of the amount under contract, but the fact that the producer is standing firm on his prices would seem to have spurred the consumer to take in more coal at the market. At this time it seems that many a large consumer is going to try to go through the season with only about a third of his needs under contract, feeling that the average at the end of the year will actually show a saving.

Spot prices, in the Weekly Review, show little or no change, and for that reason the very first real boom in buying is certain to move them upward. There has been some little demand for Pool 18 around \$2. Greensburg mine run has been offered \$2.25@\$2.50.

Business at Tide is less than ordinary, being confined principally to bunkers. The British strike has thus far failed to affect this port.

Northwest

MILWAUKEE

Coal Market Slows—Anthracite Cut—No Change in Soft Coal—Coal Coming In Freely.

A reduction of 40c. in the price of anthracite and 25c. in the charge for carrying in coal from the curb are the

latest developments in the coal market. Prices will be restored at the rate of 10c. per month for the coming four months.

Anthracite egg now sells at \$15.55; stove and chestnut \$15.80. There is no change in the soft coal schedule as yet, but it is expected there will be some changes as soon as freight rates are adjusted. The market is slow, demand being small. Dock men are urging early buying so that they may make the most efficient use of their storage facilities.

Milwaukee's coal receipts during the month of April aggregated 197,683 tons, of which 43,100 tons were anthracite and 154,583 tons soft coal.

The State of Wisconsin is taking steps to purchase at one time all the coal necessary for state institutions. In the new plan the chief state engineer will advertise specifications on the B.t.u. basis, and bidders may make offers on any part or on the whole lot.

MINNEAPOLIS

All-Rail Trade at Standstill as Freight Cuts Restore Dock Trade—Demand Is Quiet.

Those who have flouted the admonition to buy coal early at the best price available, rather than take any chances, are in the position of the small boy who establishes his point in an altercation with a mate, for the ground of refusal to buy early has been the hope of lower prices. Now comes the Interstate Commerce Commission with an order reducing the freight on soft coal, to be shipped to the Northwest via Lake and rail, by 28c.

Now the question is, what will be the effect and how soon will there be a change in the matter of buying, for there are some other possibilities held forth as involving further freight reductions. It is not to be denied that it will be for the benefit of all concerned if there could be some early buying of coal for the Northwest. There is something of a resentful spirit that implies opposition to the move, as calling upon the Northwest alone to take the advance step in buying. Despite this feeling the move itself is a good one. The more coal that is moved early to the Northwest the surer the coal trade here will be of being free of trouble in the fall when others will be having their difficulties.

But it is equally true that there should be some greater inducement than has yet been held forth to urge upon the people of the Northwest to ship early. The ten-cent cut in hard coal per month or the 25c. cut in soft coal from the Illinois fields is not sufficient to justify carrying coal through the summer, if it cannot be sold until fall. And the consumers simply will not stock early, so there is little reason to hope for moving coal until toward fall to the man who is to use it.

The all-rail trade is about at a standstill. There seems to be considerably less activity than usual at this time, although it is often a quiet period at

best. It is a question what the all-rail trade will do to meet the new situation caused by the reduction in freights. From previous performance the rail trade is inclined to be very aggressive and to fight to hold what trade has been secured. It has pushed its selling area further into the field of the dock interests during the past few seasons.

DULUTH

Dock Trade Is Slow—Receipts Heavy—Anthracite Prices Cut.

Coal shipments from the Duluth-Superior docks throughout the Northwest during April were the smallest for any month in more than ten years. They aggregated only 5,831 cars, as compared with 10,400 last year, and 14,009 cars during April, 1919.

That the coal trade has been in the doldrums during the last four months is brought out in the fact that shipments from the docks from Jan. 1 to April 30, 1921, aggregated only 29,848 cars, as compared with 87,787 cars during the same period last year.

An unusual situation has been created in trade circles through the delay of dealers in issuing new prices for the season. With a reduction of 28c. in the freight rate from the mines to Lake Erie docks and a reduction in the wages of coal dock workers just put into effect here, it is expected that retail prices of lump Youghiogheny, Hocking and Splint bituminous coal will be around \$9.50, as compared with \$16.25 at the beginning of last winter.

The new retail prices on anthracite, as announced by dealers, are 80c. and \$1 lower than the figures in effect last winter. Retailers had at one time been hopeful that anthracite quotations for this season would open up about \$2 lower than last season's basis, but their calculations were upset on the receipt of dock figures from their Eastern headquarters. Comparative retail prices are as follows:

	1921	1920
Egg	\$14.85	\$15.70
Stove	15.10	15.90
Nut	15.10	16.00
Pea	13.10	14.10
Buckwheat	11.00	11.25

An advance of 10c. a month will be made up to and including September.

Receipts of coal at Duluth and Superior docks from the opening of the navigation season to April 30 aggregated 197,500 tons; 85,000 tons of hard coal and 112,000 tons of bituminous, as compiled by the Tomlinson Co., vessel agents.

Inland West

CHICAGO

Anthracite Buying Is Active—Bituminous Demand Slumps Despite Many Shortage Warnings—Contract Market Is Quiet.

The only activity is in the present demand for anthracite. Dealers are continuing to concentrate on hard coal

and are taking in shipments at a rapid rate. One or two cargoes have already arrived, but the docks have not started making shipments as yet, as practically all hard coal coming into Chicago has moved all-rail. We understand the policy of the dock owners is to load their docks up on anthracite and hold this coal for winter shipment.

Sales agents declare that conditions show absolutely no signs of improvement as far as bituminous coal is concerned. The demand for the prepared sizes dwindled considerably after the first of the month and steam coal is now weaker than it has been for some time. If there is any sign of an industrial revival, it is only on the part of the packers, who appear to be enjoying good business.

Various operating companies and sales agencies are going to the trouble of spending considerable money and energy in sending out circulars to the entire trade, giving them facts and figures in regard to the car situation. As conditions exist today, it is very difficult to find either an operator or jobber who is not firmly of the opinion that there will be a drastic car shortage later on in the season. A week ago, we understand, there was a very slight car shortage in the southern Illinois field. The buying public, as a general rule, are disregarding the warnings sent out by the operators, as they look upon these as only a propaganda to stimulate sales.

The contract season is going to be pretty late this year as but few agreements of any importance, outside of one or two large pieces of railroad business, have been closed so far. Manufacturers buying large quantities of coal are showing a tendency to delay, or if they are contracting, are only buying a relatively small proportion of their tonnage, preferring to rely upon buying the major portion of their coal on the open market.

CLEVELAND

Lake Loadings Set New Record—Output Slightly Better—No Gain in Steam Demand—Anthracite Prices to Rise.

Bituminous—No increase in the demand for steam coal has been noted in this district in the last week, small contracts with railroads providing virtually the only activity. However, production figures are showing some increase, possibly due to greater Lake movement. Last week the output jumped from 45 to 51 per cent of capacity in the eastern Ohio mines. No price changes have been reported for spot coal.

Anthracite and Pocahontas—Dealers are conducting an active advertising campaign to arouse interest on the part of consumers in purchasing coal now. A new rise in anthracite prices is promised as a result of the advance in mine prices of 10@25c. in the May circular. A shortage of lump sizes of Pocahontas is predicted by dealers later in the year.

Lake—All records were shattered by loadings of coal for the season up to May 1. The total was 1,222,568 tons of which 1,176,508 tons were cargo and

44,060 tons vessel fuel, according to the report of H. M. Griggs, manager of the Ore and Coal Exchange. This record is the largest in eight years and tops 1920 by 850,000 tons.

No retail price changes. Receipts of bituminous coal at Cleveland during the week ended April 30 amounted to 1,128 cars, divided; industrial 764, retail 364, as compared with a total of 852 cars the preceding week, indicating an increase of a little less than 300 cars.

CINCINNATI

Distress Screenings Appear—Reduced Lake Rates Disturb Market—Smokeless Advances.

Reduced railway freight rates to the Lakes was the disturbing element to the coal market here this week. The Kentucky rates from the Hazard and Harlan districts to Toledo were reduced from \$2.11 to \$1.83 with an approximate reduction of 14 per cent on shipments from West Virginia points to Ashtabula, Sandusky and other ports.

The immediate effect of this was an increase in the output of West Virginia mines and a resultant surplus of screenings being laid down here. A reduction in price was immediate. Nut and slack dropped to \$1.50 and some coal dangerously near demurrage had to be sold under that figure. Some sales, however, were made up to \$2. Mine run also suffered from the drop, \$2 being the average price for spot sales. Spot block coal was affected, some in distress selling \$2.50@\$2.75. Little prepared coal of this sizing is now being offered on contract.

Smokeless prepared coals showed a little vigor, some of the operating companies holding egg and lump as high as \$5.75, this graduating down to \$5, which is the circular price. With a better seaboard demand little mine run in excess is coming this way so that the price held firm at \$3.50.

Retail prices have been jiggled around a little. Better grades of Pocahontas lump are firm at \$10 though some New River and off-grades were sold around \$9.50. Mine run is \$7.50@\$8. Bituminous lump is \$7.50@\$8, mine run \$7@\$7.50, and screenings \$6@\$6.50.

DETROIT

No Interest in Bituminous Market—Shipments Are Light and Little Free Coal Is on Track.

Bituminous—Consumers of steam or domestic are maintaining their attitude of aloofness, apparently not yet having become impressed with the fact that it would be easier to fill their requirements now, than it is likely to be later in the year.

Wholesalers and jobbers are doing very little business. There is a large proportion of the users of steam coal who seem to be deriving their present supply from storage piles. Some of the jobbers indicate there is a very slight improvement in demand.

Jobbers are now quoting West Virginia lump at \$3.50, 4-in. lump \$3, mine run \$2.50; nut, pea and slack \$2. Ohio 3-in.

lump is \$3.25, 4-in. \$3, mine run \$2.25, nut and slack \$1.90. Smokeless lump and egg is offered at \$5.50, mine run \$3.50, nut and slack \$2.25.

Anthracite—Demand is very sluggish, consumers evidently hoping that by delay they will be able to purchase more cheaply. Retailers are quoting egg \$14.25@\$14.50, and stove and chestnut \$14.50@\$14.75.

ST. LOUIS

Domestic Situation Improves—Steam Prospects Are Not Good—Country Business Unusually Slow and Railroad Tonnage Light.

There has been considerable activity the past week in domestic circles, especially for the better classes of coal. Nearly all of this is for prompt delivery and if the users of the other grades would begin buying like the Carterville users are, everything would indicate an easy situation next fall.

Mt. Olive orders are coming in fairly well but are not in the volume that they should be. The Standard situation is a bad one. A few storage sales are being made at \$4.50@\$4.75, whereas the regular retail domestic price is \$5.50. The steam situation is extremely bad. Very few plants are going and they are using a light tonnage. There is no demand at all from the country districts. Locally screenings are selling for \$1.50 from the Standard field and lump is as low as \$1.85.

The St. Louis public school bids were opened recently and the lowest bidder was the Boehmer Coal Co. with Standard coal at \$4.37 $\frac{1}{2}$. This calls for 35,000 tons, 25,000 of which are to be put in in June and July. Another big piece of business expected to be closed is 75,000 tons of Standard screenings for the Laclede Gas Light Co. This is expected to go at a price of about \$2.10.

COLUMBUS

Buying Still Restricted to Present Needs—Slack Is Becoming Heavy—Contracting Sluggish.

The trade is in statu quo as far as prices and output goes. Little improvement is looked for until the Lake season is under full swing and until small sizes are purchased more freely.

Although few contracts for Lake tonnage have been closed, producers are in receipt of many inquiries, but the uncertainty of the screenings situation is holding up agreements. At present there is very little demand for slack. Until some provisions are made for taking care of the slack, few Lake contracts are expected.

Steam trade continues slow in every locality. Following a slight spurt in the demand for steam sizes in the Michigan market, that section is again quiet. More activity is shown in the industrial centers of Ohio, however. Prices on steam grades show no improvement, and if anything, they are lower than the previous week.

The best customers at present are public utilities. Railroads are also

taking some tonnage but this does not improve the market to any degree. Production is around 20 per cent of capacity in the various fields.

An effort to secure early buying on the part of householders has not helped to any extent. Retail stocks are sufficient for present needs and there is no disposition to increase them. Retail prices are stable at previous levels. Some anthracite and Pocahontas is being stored by householders.

South

BIRMINGHAM

Steam Trade Extremely Quiet—Good Grade Domestic in Fair Demand, but Supply Is Short—Prices Without Material Change.

The Birmingham coal market has been dull and practically lifeless the past week, so far as inquiry for steam fuel goes, there having been comparatively little business offered. Such orders as were booked were for a few cars to meet immediate needs, there being no disposition to provide for requirements very far ahead. Quotations are as follows:

	Lump	Mine Run	Washed
Pratt	\$3.35		
Carbon Hill	\$3.60@\$3.85	3.15	\$3.35
Big Seam		2.85@\$3.10	3.20@\$3.25
Black Creek	4.60@\$5.15	3.75	4.25
Cahaba		3.75	4.00
Corona		3.35	4.00

While there is a fair demand for Cahaba and Black Creek and other good grades of domestic, much more of this business could be secured if the coal were being produced or there were any definite ideas as to when increased output would be available. As long as the steam trade remains stagnant the domestic supply will be sharply restricted.

LOUISVILLE

More Interest Being Shown—Production of Prepared Sizes Increasing—Screenings Are Weaker.

One of the chief drawbacks to more active business is a belief by many consumers that lower freight rates will be made effective if they hold out. There is more inquiry for contract prices. Reduction in Lake freights resulted in movement becoming far more active and many Hazard mines are now operating at about capacity, while production throughout southeastern Kentucky is up to 45 or 50 per cent.

The movement of prepared sizes to the Lakes is resulting in weaker screenings prices, but is not affecting mine run to any extent. Although general quotations show higher prices, there have been some good grades of southeastern Kentucky coal, including Harlan gas, quoted as low as \$2 for mine run, although right now the average spot quotations are closer to \$2.50. Movement is now better, and not much distress coal is being offered.

Quotations show mine run at prices ranging \$2.35@\$2.60. Screenings are weaker, \$1.50@\$2. Block coal is fairly steady, \$3.50@\$4.

Southwest

KANSAS CITY

Prices Firm—Demand Increases—Oil Competition Is Strong.

Operators report more orders being received at the present time than for several months and it looks like the upward turn has come. The press has spread the information that there is no prospect of immediate reduction in freight rates and in the event any change is made it will not be in time to care for this season's business.

Oil competition in the Southwest has driven coal out of a great deal of Texas, Arkansas, and southern Kansas territory. When fuel oil wants a market coal has to take a back seat, as it is

impossible to meet oil competition under such conditions.

Arkansas smokeless lump for May shipment is \$6.25, mine run \$4.50, slack \$3.50; Kansas lump and nut \$5, mine run \$4.25@\$4.50, mill \$4, slack \$3.75; north Missouri lump \$4.50, mine run \$4, washed slack \$4.05.

West

DENVER

Production Increases—Wyoming Coal Brought In to Compete with Colorado Price Cutting.

Output is increasing each week, in the face of the fact that some Denver retailers are getting a semi-bituminous coal from the Rock Springs and Hanna fields in southern Wyoming, something

that is resorted to only as a means of saving the gross margin at the retail end.

Wyoming coal is cheaper by at least 50c., and while the freight is a little more in some instances there is a larger gross margin than can be realized from the Colorado coal producing company prices. The shipping of coal from Wyoming to Denver follows the effort of one of the Colorado producers to hold the mine price to \$5.50 and to retail coal through its own department at \$10.50—at least \$1 less than other retailers hoped to get.

Production for the week ended April 23 was 155,000 tons of a possible full-time output of 261,000 tons. April, however, is believed to show a better tonnage for the month than March, when 617,549 tons were mined as against 1,072,068 tons in March, 1920.

News From the Coal Fields

Northern Appalachian

ANTHRACITE

Good Domestic Demand—Production Increases—Bills Passed May Seriously Affect Industry.

There is practically no change in the number of mines working. Among the larger companies the demand for coal is almost normal. Were it not for the fact that independents cannot meet the company schedules they would almost be working at capacity.

The Pennsylvania Legislature has passed the mine cave bill and the anthracite tax bill. If the Governor approves these bills it will mean an increase in the price of prepared sizes to the extent of 2½ per cent. If the mine cave bill is approved it is intimated that a number of companies particularly in the upper field will cease operations, as the cost of production will be too great. Of course any predictions on this score are problematical.

PITTSBURGH

Some Lake Coal Moving Since Freight Rate Reduction—Byproduct Coal Heavy—Prices Slump with Quiet Market.

The 28c. reduction in rail freight on Lake cargo coal caused a slight increase in mine operations, but there has been so little disposition to buy Lake coal, and there is so little vessel tonnage available, that not much can be done. The district expects, however, to secure its former share of the total Lake business, now that the adjustment has been made.

The prompt market continues quiet, while there is practically no contract market. Sales of prompt steam coal at

under \$2 are even more frequent than formerly and must be recognized as making the market price in part, while quotations above \$2.25 are simply nominal asking prices. Gas coal continues at a margin over steam, but the margin is reduced. Byproduct as such is almost going begging, as there is scarcely any demand. The recent sale of a high grade of Connellsville byproduct to a furnace and byproduct interest at Canton, Ohio, was at \$2.50, the buyer having the option of stopping the arrangement at any time. Some other Connellsville byproduct coal has been offered at under \$2.

Operations continue to average under 40 per cent of rated capacity, and with no immediate prospect of any improvement. We quote spot coal at \$1.90@\$2.25 for steam mine run, \$2.25@\$2.50 for gas mine run and \$2.50@\$2.75 for high grade screened gas.

CONNELLSVILLE

No Means of Stimulating Production—Most Operations Idle—Frick Interests Will Also Reduce Wages.

With production at a low ebb, demand light and producers in no position to do anything that would improve the situation, the coke trade continues uneventful. Price is not a consideration at all, since consumption would not be materially increased if coke were offered free of charge. There are only two ways of reducing the cost of production by any considerable amount. One is to reduce wages, and that has already been done, to the extent of about 30 per cent. The other is to have a full operation, and this is impossible.

The iron and steel industry has the lightest operation, in point of tonnage, since 1908, and the lightest operation,

in percentage of capacity, in all history. Only about 18 per cent of the merchant furnace capacity of the country is in operation.

The Portsmouth, Ohio, furnace, which recently bought 500 tons of furnace coke a day for five weeks at \$3.50 has made a fresh purchase from the same producer for a 30 or 60-day supply, at the reported price of \$3.40.

One or two operators who were quoting foundry coke at above \$5.50, making their price practically nominal, have reduced to \$5.50, while one has reduced to \$5.25. The ordinary grade remains at \$5. We quote spot and prompt furnace coke at about \$3.50 and spot foundry \$5@\$5.50.

The Courier reports production in the week ended April 30 at 26,050 tons by the furnace ovens and 22,660 tons by the merchant ovens, a total of 48,710 tons, a decrease of 2,870 tons.

At this writing the H. C. Frick Coke Co. has not posted notices of a new wage scale, but it is assumed that wages will be reduced by something like the amount of the April 1 reduction by the independents, since the Steel corporation has announced that it will reduce wages generally, effective May 16.

UNIONTOWN

Wage Cut Coming—Consumers Sound the Future Market.

As yet no definite information is available as to the specific effect of the United States Steel Corporation's wage reduction upon the employees of the H. C. Frick Co. However, all indications show that the wage scale of these employees will revert back approximately to the scale in effect Dec. 1, 1919, a 20 per cent reduction.

Independent operators are now using the scale of Nov. 10, 1917. The scale which the Frick company will in all probability put into effect in the immediate future pays the miner 37c. more per hundred bushels of coal mined than the scale now being used by the independents, who pay \$2.29 per hundred bushels.

Tightening of production has created a somewhat apprehensive attitude on the part of coal buyers. A few weeks ago steady consumers were content to supply their immediate needs from the spot market but now they are sending out feelers upon the basis of one and two months delivery. The development is an indication that consumers are looking forward to the time when their stocks will be depleted and are feeling out the market to replenish them.

There has been no noticeable change in coal quotations. Some byproduct tonnage has sold as low as \$2. Foundry coke is quoted \$4.50@\$5 with some tonnage moving. Some operators are willing to quote a price of \$3.75@\$4 for standard coke.

The coal market is nearer the point of inactivity at this time than it has been during any period of readjustment. The consumer, apparently, is unable to entertain any price views above those that the market is quoting and the operator does not seem inclined to get the tonnage out at that price.

CENTRAL PENNSYLVANIA

Production Decreasing to Danger Mark—Wage Reductions Quietly Accepted.

Reports for the month of April show a decrease in production from March. Figures show a total of 48,015 cars with a total of 2,656,514 tons. The March figures were 56,800 cars with 3,152,400 tons. The average operation of the mines was from one to three days a week. According to reports filed in Altoona, 30 per cent of the operators in the district have reduced wages to the 1917 scale of \$1.01 for pick mining and \$5 per day. In making this reduction, none of the mines experienced any trouble.

It is predicted that two more months at the present rate of output will create a fuel famine this fall. There are many inquiries regarding contracts but this business is light. There is a slight increase in demand for bunker coal which is attributed to the strike in Great Britain.

Prices prevailing are: Pool 1, \$3.50 @\$4; Pool 9, \$2.75@\$3; Pool 10, \$2.60 @\$2.75; Pool 11, \$2.25@\$2.40; Pool 14, etc., \$2@\$2.10.

EASTERN OHIO

Production Stimulated by Lakes Trade—R.R. Contracting—Lake Demurrage Tariffs Restored.

Output during the week ended April 30 was greater than that for any week since the middle of January. Tonnage produced amounted to 322,000 tons, an increase of 47,000 tons over the preceding week and 51 per cent of potential capacity. Railroad fuel loading continues at a minimum of about 35 per cent of production. The spurt was due principally to Lake coal and also to some improvement in spot demand from manufacturing concerns.

Association mines worked 40 per cent of possible work time, as compared with 35 per cent the preceding week, and production for the week aver-

aged over 50 per cent of the rated capacity. A 15 per cent car shortage existed on the W. & L. E. because of a large amount of Lake coal being held under load both at dock terminals and along the line. There are now 12,500 cars under load at the ports, awaiting dumping, and 2,000 cars in transit.

Demurrage tariffs, the operation of which were suspended on Lake cargo coal to stimulate early shipments, were restored May 1, and after the usual five-day free time period demurrage charges now accrue. It is expected that dock clearances will be speeded up on this account.

While market conditions continue rather sluggish there has been considerable contracting during the week on the part of Ohio railroads and the price at which contracts have been closed is said to have been shaded slightly under \$3. The range of spot prices remains firm as quoted last week.

Dealers say that there is no inclination to buy and store on the part of householders, notwithstanding reports that a shortage of screened sizes is anticipated before many weeks.

UPPER POTOMAC

Production Still Light—No Demand—Operators Favor Future Spot Market.

No change was observed in conditions as April came to a close, mines either being operated very irregularly or else being shut down entirely. This was particularly true as to mines along the Western Maryland.

Producers are showing no inclination to rush into contracts, even where having an opportunity to do so, preferring to await a revival of demand. There was so little call for coal that in some instances it could be secured at almost any price.

FAIRMONT AND PANHANDLE

Production Again Slumps—Prices Weak—Lake Shipments Await New Rates—Contracting Is Sluggish.

FAIRMONT

Recent increased production has proven a mere flash in the pan and conditions are again very unsatisfactory. With demand still dormant, prices are on the same level as during preceding weeks. The number of mines in idleness average about 250 a day.

Tidewater shipments are very irregular. Few contracts are being placed by railroads as these companies are instead making agreements in the Connellsburg region at prices ranging \$2.50 @\$2.75.

NORTHERN PANHANDLE

Progress toward more normal conditions was stopped as April came to a close. With the exception of a few mines producing a small volume on contract most of the operations are shut down. There are no longer any shipments to the Lakes, operators desiring to wait for the date the readjusted Lake freights go in before resuming.

Middle Appalachian

HIGH-VOLATILE FIELDS

Sluggish Market Continues—Production Gains in Logan and Thacker—Lake Loading Is Light.

KANAWHA

Production dropped during the week ended April 30, and demand was virtually at a standstill. A small volume was going to Tide but no tonnage was being shipped to the Lakes. If anything, less coal was being shipped on contract than usual and no new agreements were signed.

LOGAN AND THACKER

Logan production increased to about 30,000 tons daily. However, only a small proportion of the output was actually sold, the remainder being stored, as was the case during preceding weeks. The C. & O. was moving a good tonnage to Lake points, where it is being held for future sales.

Further gains in production were recorded in the Thacker field, Williamson output being increased to 88,000 tons. "No market" losses showed a material reduction, being cut down to 100,001 tons for the week ended April 30, indicating that new business was developing.

NORTHEASTERN KENTUCKY

Neither demand nor prices were conducive to a large production in the last week of April. Even in the most exceptional cases mines were not operating more than two days and production reached only 53,000 tons or 25 per cent of potential capacity.

VIRGINIA

Conditions remained virtually unchanged during the last week of the month. There was no new business of any kind to stimulate production and not more than 50 per cent of potential capacity was mined. Price was no inducement to buyers and consequently the spot market was inactive.

LOW-VOLATILE FIELDS

Demand Increases—Tidewater Business Grows—Slack Coal Sluggish—Contracting More Active.

NEW RIVER AND THE GULF

With demand increasing there was a most decided upturn in New River production for the week ended April 30. The additional demand was confined largely to Tidewater and the South. Western shipments of prepared sizes were also slightly increased. Some producers were sacrificing slack and this break had some influence on the price for prepared sizes. Egg and lump were therefore quoted under \$5.

Production in the Winding Gulf increased to 50 or 60 per cent of potential capacity. However, the dumpings at Sewalls Point for April were not any larger than for the month of March.

The Virginian Ry. had a large accumulation of loads. Indications are that the dumping of coal at the piers will be rapidly increased. The price for Inland contracts remained about \$3.50, with spot coal at the piers running \$6.

POCAHONTAS AND TUG RIVER

Pocahontas production was still below 50 per cent of normal, with mines working less than half the week. There was less Tidewater coal in evidence, and as a result seaboard demand was growing. It is estimated that between 40 and 50 per cent of the average production is now under contract. The spot market was dull. An accumulation of slack has lowered the price for this grade, as in other smokeless fields.

Middle Western

MIDWEST REVIEW

Production Increases with Better Domestic Market—Industrial Situation Unchanged and Steam Becomes Heavy—Timely Warnings of Impending Shortage.

Mines in Illinois and Indiana are now enjoying better running time than they have experienced for some time. A number of railroad contracts have been let and this, together with a renewed interest on the part of the buying public, has lead to steadier working time at most of our mines. It is said that the retailers in Michigan, Indiana and eastern Illinois are purchasing coal in greater volume than heretofore, in fact, some operators claim that business on domestic sizes at this time is just about normal as compared with other years. The situation in the West, however, is not so good. The rural population of western Illinois, Iowa, Minnesota and the two Dakotas is still holding back and only purchasing enough coal to last from day to day. The situation is especially aggravating so far as the two Dakotas are concerned. The explanation is that the population of the western districts of the Middle West is much more agricultural than the population of the eastern half, and as all farm products have been affected by reason of the depression, these experts claim that it is only natural that this depression should be reflected by the trade.

The question of railroad coal is occupying the center of the stage in the Middle West coal market. The railroads are however, not united on their policy for purchasing coal. Some of the biggest roads have placed contracts or are about to do so, whereas other roads, just as important and prominent, claim they are planning on purchasing their coal on the open market, and will place no contracts until such time as mine labor is reduced. The policy of the roads which are purchasing on the open market is considered to be a fairly dangerous one, as the best brains in the coal industry in the Middle West all believe there will be a scarcity of cars a little later.

C. H. Markham, president of the Illinois Central, issued a statement broadcast, urging retailers, manufacturers and public utilities to buy their coal as soon as possible and have it on hand before the fall season. The principal argument used in this statement was that there was a very decided probability of a car shortage. This publicity work has met with very widespread approval from the coal men, as Mr. Markham has brought several facts to the attention of the public, which would have been looked upon askance had they been set forth by the coal operators. The ancient prejudice against those engaged in producing coal still exists.

The current market on steam coal is poor, in fact, the demand today is about as bad as it has been at any time since Jan. 1. Whether it is because the industrial situation remains practically unchanged, or whether it is because more steam coal is being produced on account of the better demand for domestic sizes, remains an open question. It is very easy to get advocates for both sides of the question. Many operators claim they fail to see any improvement whatsoever in industrial conditions, as some say that the situation is more unsatisfactory today than it has been since the break. Others claim they see signs of improvement all over the country and that from now on conditions will mend rapidly.

WESTERN KENTUCKY

Business Improving and Outlook Better—Lake Movement from Other Fields to Help.

Producers say that the outlook is improving. There is a slightly better demand for prepared sizes as some retailers are beginning to stock and some big industrial concerns are now figuring on contracts. Some buyers are still out of the market, only interesting themselves when distress coal can be secured.

A number of railroads are contemplating buying. The Illinois Central, in sounding a warning of an impending coal shortage and urging early buying, would indicate that it will start purchasing early, which may result in orders from several of the Harriman group roads.

Movement to the Lakes from other fields is now getting into fairly active swing, which is resulting in some districts not having much coal for the open market. This is causing better inquiries for western Kentucky fuels from the Chicago and other Northern districts. So far Southern business has been poor.

Louisville business for the western Kentucky operators is being affected somewhat by heavier movement of river coal at lower freight rates from West Virginia.

Right now there is a much better movement from L. & N. mines than from the Illinois Central operations, but this may switch somewhat, with Northern business improving. Spot quotations are shown in the Weekly Review.

SOUTHERN ILLINOIS

Domestic Market Increases—Shortage Seen as Steam Sizes Accumulate—Standard Field Conditions Are Poor.

There is considerable activity in Williamson and Franklin counties, as far as lump and egg are concerned, and there is some anxiety as to what is going to become of nut and screenings. For the first time in many weeks some few mines worked full time and others are getting as much as 4 and 5 days. On the other hand, several mines are idle because they cannot move steam sizes. The demand for domestic is growing faster than for steam and it is only a matter of time until the shortage on domestic sizes is going to become so great that the operators will have to stop taking orders.

Railroad tonnage is light, everything considered, whereas it should be moving well at this time. Independent prices are as low as \$3.25 on lump and egg, most of them charging as high as \$3.50, with nut as low as \$3, mine run \$2.75 and screenings \$2.

In the DuQuoin field somewhat similar conditions exist and the same prices prevail as with the independents in the Carterville field. Working time shows some improvement over last week, but some mines have not resumed operations as yet and steam sizes are slow. Some little railroad tonnage is moving. The Mt. Olive district shows considerable improvement in domestic coal. This was noticeable in the St. Louis market, as well as the Northwest and the North. The St. Louis price on domestic sizes is \$3; on outside shipments, \$3.25. Screenings are moving slowly, but are being sold to operators having washeries, the washed product going to the Northern market.

In the Standard district there is no improvement to speak of. The steam situation has everything blocked off. Screenings are selling for \$1.50, lump or mine run as low as \$1.90, and nut and egg \$1.90@\$2. The general average, however, is about 25c. per ton higher than this.

West

UTAH

All Markets Inactive—Production at Low Ebb—Prices Unchanged.

The coal business here seems to have had the bottom knocked out of it. "Rotten!" or "There is none!" is the reply of some of the leading producing companies when asked how business is. The storms and rather chilly weather of late have helped the retail business some, but there is nothing substantial in the way of improvement at this end.

Consumers cannot believe that prices will remain where they are much longer and everyone is buying from hand to mouth. In the opinion of some of the producers, it will be July before business picks up, others are looking for it to come in June. The coast trade as well as the local trade is quiet.

MINE And COMPANY NEWS

ALABAMA

James Bowron, president of the Gulf States Steel Co., recently retired from this position and was elected chairman of the board. Mr. Bowron became associated with the Southern Iron & Steel Co. in 1910 and assisted in the reorganization of the properties under the name of the Gulf States Steel Co. The company has steel mills and furnaces in Gadsden and coal and ore mines in Jefferson and adjoining counties, consuming the major portion of its mineral output at its own plants. Chas. A. Moffett, now vice-president and general manager of the corporation, was elected to the presidency and also will continue to serve in directing the management of the physical properties.

ILLINOIS

The Peerless Coal Co. of Chicago, operating a large colliery near Springfield, has recently installed a new re-screening plant. Included in the equipment is a 30 x 12 in. double strand flight conveyor, 90-ft. centers, which travels at the rate of 100 ft. per minute. The structure is also equipped with picking-tables and the three steel bins have a capacity of 200 tons. A device which was worked out by F. J. Devlin, superintendent of the plant, consists of a rope attached to the switch which controls the motor, and the rope is so arranged to be accessible from all the walkways and platforms throughout the plant so in case of danger or accident the plant could be shut down instantly from any point in the building.

The mine of the Carbondale Coal Co., at Carbondale, has been purchased by Robert Forsyth, a coal operator of Marissa, who is well known in the district.

The Wallace Coal Co. of St. Louis has been appointed sales agent for Kathleen coal by the Union Colliery Co. for Illinois, south of Mattoon and west from Champaign to Clinton, Pekin to the Mississippi River, for Missouri the territory south of Hannibal to Chillicothe, to Carrollton, Marshall, Sedalia, Clinton and west, also for all southern states on both sides of the river.

INDIANA

The name of the Ferguson-Spears Coal Co. was officially changed to the Ferguson Coal Co. in the Circuit Court, at Terre Haute recently.

The Rowland-Powers Collieries Co., of Terre Haute, is opening up a new field north of Linton, where 500 acres of coal land have been acquired. A large portion of the land will be stripped to the No. 4 vein. A force of men is at work building a switch from the Southeastern R.R., at a point near the North Linton mine switch to the new mine, a distance of one mile.

A \$10,000 damage suit against the McClelland Coal Co. was filed in Superior Court No. 2, at Terre Haute, recently, by John M. Wilson. Wilson was an employee of the Shourds-Stoner Co., who had been employed to do some engineering work for the coal company. While in the mine Wilson was overcome by bad air and poisonous gas, the allegation being made that his lungs and entire breathing system were poisoned and permanently injured.

KENTUCKY

The Kosmos Portland Cement Co., Louisville, operating a large cement mill at Kosmodale, 15 miles from Louisville, has recently filed amended articles of incorporation, reducing the capital from \$1,500,000 to \$925,000, and changing the charter to permit the company to deal in salt and coal.

F. B. S. Coal Co. of Island, capital \$250,000, has been chartered by L. Fruhlinger, of Portage, Pa., George C. Buzski, Island, and Michael Silagi, Gary, W. Va.

The R. C. Tway Coal Co., producer and jobber of Louisville, which also operates the James Coal Co., as a retail organization,

is using some very good advertising, in which it states: "Idle coal cars by the thousands fill the railroad sidings. Now they should be moving the winter coal supply to the markets. Later thousands of consumers, rushing in with their orders, will face disappointment."

Work has been started on a coal byproduct plant five miles east of Somerset by the Kentucky Coal & Electro Chemical Co., a New York syndicate, which owns a large coal acreage that it has been working for some time. A pike will be built from Somerset to the plant and the output will be hauled to the railroad in huge trucks.

The Stephens Branch Coal Co., Prestonsburg, capital \$50,000, has been chartered by S. C. Ferguson, E. Ferguson and Cal Clark.

The Elkhorn Coal & Timber Co., Elkhorn, capital \$5,000, has been chartered by K. B. Elswick, P. M. Elswick and T. L. Hughes.

The Black Blue Gem Coal Co., Gatlinburg, capital \$2,000, has been chartered by T. H. Black, C. D. Clark, Jr., and G. M. Castle.

MICHIGAN

Word has been received that Mine Rescue Car No. 10 of the United States Bureau of Mines will visit the mines of Upper Michigan this month, and will remain in that section until July 29. R. V. Ageton, car engineer, has arranged an itinerary which will bring the car to the larger mines for demonstration.

OHIO

For the third consecutive year, the Columbus Board of Education has awarded the contract for furnishing approximately 10,000 tons of lump to the Colonial Coal & Supply Co., Columbus. The price was \$5.19 per ton delivered at the various buildings. The work of delivering the coal will be started at once.

The Columbus office of the Pittsburgh Coal Co., announces that it drilled in a 50-barrel oil well on its property near Murray City. The company is arranging to drill other oil wells on its property in that section.

Papers have been filed with the secretary of state increasing the authorized capital of the Elmer Miller Coal Co., from \$50,000 to \$100,000.

The capital of the Cub Mountain Coal & Coke Co., has been increased from \$25,000 to \$140,000 by papers filed with the secretary of state. H. W. McGinnis is president and L. L. Bechwats, secretary.

The authorized capital of the Bethesda Coal Co., has been increased from \$50,000 to \$100,000. A. C. Peters is president and George C. Saarosy, secretary.

OKLAHOMA

The Kincaid-Corriigan Coal Co., which more than a year ago sunk a shaft one mile and a half from railroad accommodations, have built a motor haulage tramway road from the mines to the Frisco railroad, and are running their own coal train from the underground track direct to their tipple on the Frisco track. This tramway in a coal field is a new innovation that is attracting much attention among the operators having coal lands at a distance off steam railway connections and is looked upon as one more advance for greater development of the Henryetta-Dewar field.

The Wadsworth Coal Co. is making extensive improvements in the No. 2 mine, which will shortly be fully equipped with motor haulage, and additional car equipment.

One of the largest veins of coal yet found in the Okmulgee field has just been uncovered in the new mine of the B. & A. Mining Co., just west of the townsite of Schulter. The Frisco R.R. is now laying a new track more than a mile long to reach the mine and to serve two other mines which are to be opened up in the Schulter district. The

B. & A. Co. will install electrically operated mining machinery and expects to have an output of several hundred tons of coal daily by next fall.

The Pittsburgh Coal Mining Co., with general offices in Kansas City, has just completed extensive improvements at its Mine No. 12 near Henryetta. The improvements cost in excess of \$60,000 and include a modern tipple and electrical hoists and other coal handling facilities.

The Warden-Pullen Coal Co. will open an entirely new shaft on additional acreage recently secured.

PENNSYLVANIA

Property, valued at more than \$1,000,000, is involved in a suit instituted by the Pennsylvania R.R., the Mountain Water Supply Co., and the Dunbar Water Supply Co. against twenty-eight coal companies and forty-six individuals having mining operations in the Indian Creek Valley. It is alleged that discharges from the mines, principally of sulphur, render the water of Indian Creek unfit for use. The Pennsylvania has a large reservoir as do the other plaintiffs.

Indications are that a record will be established in sinking the two shafts for the new coal operation of the Northwestern Mining & Exchange Co., at Cramer which began recently. The plant will be electrically equipped and modern in every respect. The daily output will be equal to the largest operations in this section and will give employment to several hundred men. A large town will be built by the company and all will be located within ten miles of DuBois.

A Pennsylvania charter has been applied for by M. B. Cortright & Co., wholesale bituminous operators, Franklin Bank Building. M. B. Cortright will be the president of the incorporated company.

J. W. and R. W. Campbell have associated themselves in business under the firm title of Campbell Coal & Coke Co. They have taken a suite of offices at 922-24 Real Estate Trust Building, Philadelphia.

The Dealers and Consumers Coal Co. has recently been organized. W. F. Dodge, for many years consulting engineer has been elected president. Offices are at Wilkes-Barre for the present. The operation will be in Schuylkill County, near Tuscarrora, where the company has purchased 220 acres of coal land. It will at once begin the erection of a modern breaker and will sink a slope.

TEXAS

The Smithville Lignite Coal Co. has been organized at Smithville for the purpose of developing extensive leases of lignite lands in that part of the state. The company is capitalized at \$20,000 and the incorporators are R. D. Kercheval, A. J. Overton and Emil Buescher.

The Big Lump Coal Co. has been organized at Rockdale, with a capital stock of \$25,000. The incorporators are: M. C. Meyer, E. B. Phillips and C. K. Stripling. This company will mine lignite in the Rockdale fields.

UTAH

The Salina Canyon Coal Co. with a capital of \$10,000 has just filed articles of incorporation. The incorporators are J. G. Ryan, R. M. Lehman, B. Kenner, B. E. Mattson and L. E. Cluff. The company will open a mine about 16 miles up the Salina Canyon.

The Utah States Securities Commission has granted the Mutual Coal Co. permission to sell 25,000 shares of stock at \$10 per share for the first 10,000 shares, \$12.50 for the second block of 5,000 and \$15 for the remainder for which application had been made a long time since. This gives the gross receipts from the sale of stock as \$312,500 and the net receipts after deducting the 15 per cent com. allowed, as \$265,625. The application was hotly con-

tested on the ground that the company, which is trying to sell coal at "cost," was insolvent and could not open and operate a mine on the money asked.

VIRGINIA

A special meeting of stockholders of the Southern Coal & Iron Corp. has been called for May 21 at Roanoke to act upon the proposed amendment to the company's charter authorizing an increase of its capital stock from 300,000 to 500,000 shares.

WEST VIRGINIA

Plans have been completed by the Consolidation Coal Co. for the erection of a new tipple at what is now known as Mine No. 63 at Monongah. The tipple will be of most modern type, and equipped with shaker screen and all other equipment necessary for the preparation of coal.

The Soper-Mitchell Coal Co., which has several mines in the Scott's Run section of Monongalia County, is preparing to resume operations at its various plants within the very near future, giving employment to about 500 miners.

Following the organization of the McCreary Central Pocahontas Coal Land Co., Beckley, capitalized at \$500,000, this being a holding company, acreage owned by the company, aggregating about 15,000 acres in all, will be leased to operating companies for development purposes, contingent upon railroad development.

The Raleigh Coal & Coke Co., with principal operations in Raleigh County, is making preparations to put in another plant on

Piney. The company has under present conditions a production of 600,000 tons per year and expects to be able to increase this production through the new plant to three quarters of a million tons in all. John M. Wright, of Cincinnati, is the president of the company and Ernest Chilson is the general manager.

C. M. Lilly and associates, who are identified with coal development of Raleigh County, have organized the Pack's Branch Coal Co. to develop coal lands on Pack's Branch in the Raleigh field. This company has a capitalization of \$100,000, its headquarters being at Beckley. Leading figures in the new concern, in addition to Mr. Lilly, are: H. Stansbury, C. L. Caloway, Fred Stansbury and W. J. Fenders, of Beckley.

Many of the mines in the Winding Gulf region are undergoing repairs as if in preparation for an unusually good season. At a great many plants new equipment is being placed and provision is being made for the employment of more miners by the construction of additional dwellings for miners. The dull season of the last few months has afforded many operators an opportunity to put their mines in shape for long and steady runs. Finishing touches are being put on the new plant of the Pemberton Coal & Coke Co., at Phillips. This company is making preparations to build another plant on Laurel Fork. As indicating the use of more miners, the Gulf Smokeless Coal Co., the Gulf Coal Co., the Wyoming Coal Co. and the Morris Smokeless Coal Co. are all building additional houses at their several plants. All of the above named companies are in the Tams group, of which W. P. Tams, Jr., is president. The Winding Gulf Colliery Co., with a plant at Winding Gulf,

contemplates the erection of additional houses at its scene of operations.

Work has been started on the new operation in which C. E. Hutchinson of the Hutchinson Coal Co., of this city and others are interested, in Costa Rica, this being known as the San Jose operation. At the present time the headings are being driven but machinery has not been secured and installed. However the company expects to be in a position to begin production before long. The Dodge Coal Co. has been organized with a view to operating in Harrison County. This company is capitalized at \$50,000. General offices of the company for the time being are to be in Clarksburg. Largely interested are: L. W. Garrett, F. K. McClure, Clara M. McClure, J. W. Barnard, D. Bruce Mason, all of Clarksburg, W. Va.

NOVA SCOTIA

The Dominion Coal Co. has commenced shipping coal to Montreal, the first consignments having already been received. The St. Lawrence market was lost to Nova Scotia coal, partly owing to the profitable market for bunkering on the Atlantic coast, and partly through the high freights and scarcity of shipping for the trade. These conditions have changed with the return of the company's ships by the government and the general scaling down of freight charges. The Dominion Coal Co. proposes to ship about 1,000,000 tons of Montreal this season, and has already made contracts with a large number of manufacturers. The pre-war consumption of Dominion coal in the Montreal district was about 1,800,000 tons annually, but owing to the slackness of industrial conditions the demand will be much lighter this year.

Traffic News

In the case of the Alabama Co. the I. C. C. has received an examiner's report recommending that the rates during federal control on coal and coke from and to certain points in Alabama were not unreasonable.

In the case of the West Kentucky Coal Bureau an examiner recommends that the rates on bituminous coal from mines in western Kentucky on the Illinois Central and Kentucky Midland railroads to points in the southern peninsula of Michigan are not unreasonable but are prejudicial to operators in western Kentucky and preferential to operators on the Illinois Central in the southern Illinois group, to the extent that they exceed on a joint basis by more than 25c. a ton the rates from mines on the Illinois Central in the southern Illinois group to the same destinations.

Theodore A. Leber of Port Reading, N. J., complains against unreasonable rates on anthracite coal from St. Clair, Pa., to Port Reading.

The Perry County Coal Corporation of St. Louis complains against unreasonable rates on coal from its mines in Illinois to points in the St. Louis and East St. Louis districts.

The Hood Coal Co., of Shinnstown, W. Va., complains against unreasonable rates on bituminous coal from mines in West Virginia on the Monongahela Valley Traction Co. to destinations in Maryland, Delaware, New Jersey, New York, Pennsylvania and other States by reason of the absence of joint through rates applicable from competing mines on the B. & O. and Western Maryland railroads.

In the complaint of the Harlan County Coal Operators' Association, the commission decides that the rates on bituminous coal from mines in groups 1, 3 and 4 on the L. & N. in Kentucky to Toledo for transhipment by Lake are not unreasonable.

The recent decision of the commission to reduce rates for Lake shipments from all Ohio fields is expected to stimulate the lake trade. The former rate was \$1.83. Under the new rate this will be \$1.55. From the inner crescent of West Virginia the former rates were \$2.11 which goes to \$1.83 while the rate from the outer crescent was \$2.26 and is reduced to \$1.98.

The Hewitt-Wilcox Coal Co. and others of Auburn, N. Y., have complained to the I. C. C. against unreasonable rates on anthracite coal from points of origin in Pennsylvania to New York destinations, and request reasonable rates.

The I. C. C. has authorized the Coal Trade Bureau of Illinois to intervene in the complaint of the Central Illinois Light

Co. and the Sharon Coal Co., involving rates on soft coal from mines in Illinois to Peoria.

Freight rates per net ton from the mines to Chicago, exclusive of War Tax, are as follows:

Southern Illinois (Franklin, Saline and Williamson Counties), \$2.17.
Central Illinois (Springfield District), \$1.72.
Central Indiana (Clinton Field), \$1.78.
Southern Central Indiana (Knox County), \$1.92.
Southern Indiana, \$2.01.
Hocking (Ohio) District, \$3.18.
Eastern Kentucky, \$3.43 to \$3.94.
West Virginia, Smokeless Field, \$3.58.
Pennsylvania, Anthracite, \$5.62.

Personals

V. H. Campbell, vice-president of the Kentenia Coal Co., of New York, was in Norfolk recently.

J. D. Wheeler, of the Hughes-Butterly Coal Co., Oklahoma, is making an extended trip among the eastern trade.

H. M. Rea, treasurer of the Southern Gem Coal Corporation of St. Louis, Mo., has been elected a director of the National City Bank of St. Louis, a new institution now being formed in that city.

S. L. Matz, president of the Matz Coal Co., whose plant is at Raven, W. Va., was in Cincinnati on business early in April.

W. H. Wright, president of the Raleigh Coal & Coke Co., whose plant is located at Raleigh, W. Va., has returned to his Cincinnati office after spending the greater part of the winter in Florida.

Edwin Ludlow, president, and Bradley Stoughton, secretary of the American Institute of Mining & Metallurgical Engineers, were in Seattle recently on a tour of the Pacific Coast.

W. P. Tams, Jr., president of the Gulf Smokeless Coal Co., the Gulf Coal Co., the Wyoming Coal Co., the Morris Smokeless Coal Co. and other companies in southern West Virginia, London and China is reported as having started for home and is expected to reach his headquarters at Beckley about June 1.

Colonel James Elwood Jones, vice-president and general manager of the Pocahontas Fuel Co. and originator of the McDowell Dental Clinic idea, which is spreading throughout West Virginia, was a visitor in Charleston, W. Va., recently.

C. D. Cudworth, manager of anthracite sales for H. N. Hartwell & Son, Boston, visited Philadelphia houses recently in the interest of his company.

W. H. Clemmency, of Clemmency, Hammer & Co., has been visiting that concern's customers in the New England district during the past several weeks.

F. M. Heffelman has been made manager and treasurer of the Valley Camp Coal Co. of Canada, Ltd., with offices at Hamilton, Ont. Mr. Heffelman was formerly in the general office in Cleveland.

C. L. Straub has been named secretary of the Straub-Atkinson Coal & Coke Co., Pittsburg, the appointment being effective April 25. A. A. Straub, formerly of Connellsburg, is general manager.

Charles A. Owen head of the Tidewater Coal Exchange, Inc. and president of the Imperial Coal Corporation, spent a few days recently in the vicinity of Johnstown on a mine supervision trip. Returning to New York, he was a passenger on the Pennsylvania train which was wrecked near Horse Shoe Bend.

W. C. Schroeder, of the Nason Coal Co., of Chicago and for eight years connected with the Rutledge & Taylor Coal Co., has resigned to accept the position as sales manager of the Union Colliery Co., of Chicago, with headquarters in St. Louis. In joining this company he succeeds Harry A. Lawrence who has been with the company for a number of years.

Dr. George Otis Smith, director of the Geological Survey, addressed the Indiana Retail Coal Merchants' Association at Indianapolis May 6, on "What the Coal Business Means to Us."

David White, chief geologist of the Geological Survey, addressed the mining department of the state college of Pennsylvania on April 29, on "The Deposition of Fossil Fuels."

J. D. Sears, C. P. Ross and a geological party representing the United States Geological Survey, will leave the middle of May to do coal classification work in the Gallup and Zuni basins of New Mexico.

F. A. Wyant, who has for the past four years been connected with the engineering department of the Hillman Coal & Coke Co. in different capacities, has been appointed engineer in charge of construction of the new Warwick Mine, the construction of which has just been started by the Diamond Coal & Coke Co., of Pittsburgh, a subsidiary of the Hillman Co. This mine is planned for an output of 1,500 tons daily.

George J. Patterson has been elected president and general manager of the Scranton & Lehigh Coal Co., of Brooklyn, to fill the vacancy caused by the death of Thomas V. Patterson, his brother. Mr. Patterson has been in the coal business a number of years, having been associated with his father, the late Thomas J. Patterson, and his brothers Stephen J. and Thomas V. Patterson.

Industrial News

Chicago, Ill.—The local office of the Uehling Instrument Co. of New York, manufacturers of fuel saving equipment, was moved May 1 to the Great Northern Building, 20 West Jackson Boulevard. Walter C. Lange has been appointed manager.

New York, N. Y.—The Ross Heater & Mfg. Co., Inc., of Buffalo, announces the opening of a branch office at 2 Rector Street.

New York, N. Y.—The Iron Trade Products Co. is now located at 1416, 30 Church St., being the Cortland Building of the Hudson Terminal, having removed from 1714, 30 Church St.

Pittsburgh, Pa.—The Keister-MacQuown Fuel Co. has moved its offices from the Century Building to the Union Arcade, larger quarters being necessary to take care of rapidly increasing business.

Philadelphia, Pa.—The Seaboard Fuel Corporation have removed to their new offices at 1610 Spruce St.

Association Activities

Western Kentucky Coal Operators' Association

E. W. Holt, Central City, was elected president of the association at the annual meeting of that organization. He succeeds J. A. Smith, Central City.

The business meeting, held in executive session, was preceded by a dinner at which about thirty-five persons were present.

Clarence M. Martin, Greenville, was elected vice president, and George Baker, Central City, was re-elected secretary.

Members of the Executive Committee, named last night, are: F. D. Rash, Earlington; F. P. Wright, Bevier; W. W. Bridges, Drakesboro; W. G. Duncan, Jr., Greenville; Mr. Smith and W. B. Mix, Central City.

Southern Appalachian Coal Operators' Association

The executive committee of the association met recently in Knoxville to conduct routine business. The regular quarterly meeting was also held on April 29. A successor to E. C. Mahan, Tennessee's representative on the board of the National Coal Association was chosen. Mr. Mahan's term expiring on May 19. A successor to J. C. Layne was also chosen, representing eastern Kentucky.

Charleston Tidewater Coal Exchange

The committee of the exchange met in Knoxville April 29 when organization was perfected and G. L. Baker of Washington was authorized to go ahead with the incorporation of the company.

The Southern Ry. is expected to submit a tentative contract for carrying coal to Tide, and J. E. McCoy, secretary of the Southern Appalachian Coal Operators' Association, who is also secretary of the Tidewater campaign, was authorized to arrange with the Bureau of Mines for the testing and classification of coal under the various pool numbers used in Tidewater exchanges.

Application for charter for the Tidewater exchange bears the names of L. C. Gunter, chairman; John E. Patten, Chattanooga; John L. Boyd, Knoxville; R. E. Howe, Middleboro; E. C. Mahan and Guy Darst, Knoxville; G. W. Stephenson, Chattanooga; K. W. Dyas, Sterns, Ky., operators, and I. L. Graves, Knoxville, representing the carriers; H. M. Payne, New York, transshippers, and J. E. McCoy as directors. Mr. Payne is an interlocking director. A discussion was held on the advisability of a sales policy to develop permanent export business.

Denver Coal Merchants' Association

Greater efforts to get back to an economic basis of distribution, with prices leveled to pre-war figures or nearly so, in the event wages and overhead expenses are cut in proportion, were outlined at the annual meeting of the merchants' association. An aggressive campaign, including

the consideration of all grievances first by an executive committee, to do away with needless squabbles, is one step in a new policy inaugurated by E. H. Coykendall of the Bundy Coal Co., the new president, and reaches out to grapple with economic problems.

Others elected for the year were: George A. Levy of the Liberty Fuel Co., vice-president; Karl Koch of the Great Western Fuel and Hardware Co., secretary-treasurer; Edgar Hopper, commissioner. W. E. Greenwald, vice-president, presided in the absence of A. P. Smith, the retiring president.

Directors elected were: E. H. Peterson, Rio Grande Fuel and Feed Co.; H. B. Madsen, Globeville Fuel and Feed Co.; Theodore L. Shaw, Shaw Coal Co.; Louis Schraga, Great Northern Fuel Co. Directors (wholesale): Thomas F. Eagan, Federal Coal & Timber Co.; P. M. Peltier, Big Four Coal & Coke Co. and W. B. McDonald, Rocky Mountain Fuel Co.

Trade Catalogs

Fixed Resistance Charging Panels—The Automatic Electrical Devices Co., Cincinnati, Ohio. Bulletin 620. Describing their use for industrial trucks and locomotive service.

Unipanels—The Automatic Electrical Devices Co., Cincinnati, Ohio. Bulletin 621. Illustrating the various types for charging storage battery locomotives, etc.

Building Mixers—The American Cement Machine Co., Inc., Keokuk, Ia. Pp. 8; illustrated. Showing various types of concrete mixers.

Rands Patent Traveling Coaling and Cinder Plant—Roberts & Schaefer Co., Chicago, Ill. Bulletin 40. Pp. 15; illustrated. Describing a portable structure for locomotive coaling, coal storing, and cinder handling.—Advertiser.

C-H Brakes—Cutler-Hammer Mfg. Co., Milwaukee, Wis. Publication 850. Pp. 16; illustrated. Describing C-H electrically operated brakes.—Advertiser.

High Speed Induction Motors and Frequency Changers—General Electric Co., Schenectady, N. Y. Bulletin 41521A. Pp. 24; illustrated. Description of installation of high speed motors, with tables and drawings, ratings and methods of ventilation.—Advertiser.

Manometers and Engine Indicators—Bachrach Industrial Instrument Co., Pittsburgh, Pa. Pamphlets G and M, illustrated.

G-R Multiscreen Filter—The Griscom-Russell Co., New York City. Bulletin 615. Pp. 7; illustrated. Describing the filter, which is a redesign of the Reilly Multi-screen Feed Water Filter and Grease Extractor.

Type "C" Roller Bearings—American Roller Bearing Co., Pittsburgh, Pa. Bulletin 1005. Pp. 27; illustrated. Describing heavy duty and standard types.

"Rollsright" Car Tipple—The Wellman-Seaver-Morgan Co., Cleveland, Ohio. Bulletin 59. Pp. 8; illustrated. Describing patented rotating car tipple for handling mine car loads.—Advertiser.

W-S-M Standard Mine Hoists—The Wellman-Seaver-Morgan Co., Cleveland, Ohio. Bulletin 58. Pp. 28; illustrated. Describing the smaller sizes of electric mine hoists to which special attention has been given to standardization.—Advertiser.

Mechanical Stokers—American Engineering Co., Philadelphia, Pa. Pp. 45; illustrated. Describing experiences of various users of the Taylor Underfeeder Stoker.

Electric Hoists—Allis-Chalmers Mfg. Co., Mining Machinery Dept., Milwaukee, Wis. Bulletin 1819. Pp. 71; illustrated. Cuts and data, giving information to those interested in mine hoisting equipment.—Advertiser.

Recent Patents

Mine-Ventilating Appliance. James F. Gamille, Fredericktown, Pa. 1,372,500. March 22, 1921. Filed May 7, 1919. Serial No. 295,318.

Rail Fastener. Jacob Kordyl, Carnegie, Pa. 1,372,519. March 22, 1921. Filed Nov. 24, 1920. Serial No. 426,152.

Mechanical Coal Feeder. R. G. Miller, Pittsburgh, Pa., assignor to the W. R. Miller Co. 1,372,765. March 29, 1921. Filed Dec. 17, 1919. Serial No. 345,477.

Apparatus for Burning Pulverized Fuel. W. W. Conard, Norristown, Pa. 1,370,091. March 1, 1921. Filed July 15, 1916. Serial No. 109,477.

Mining Machine. Robert C. Osgood, Claremont, N. H. 1,370,477. March 1, 1921. Filed June 23, 1916. Serial No. 105,498. Renewed June 26, 1920. Serial No. 392,046.

Loading Machine. Norton A. Newdick, Columbus, Ohio, assignor to James Ellwood Jones, Switchback, W. Va. 1,370,904. March 8, 1921. Filed May 8, 1919. Serial No. 295,609.

Miner's Bit. Henry J. Albers, Breese, Ill. 1,371,137. March 8, 1921. Filed April 29, 1918. Serial No. 231,493. Renewed Jan. 3, 1921. Serial No. 434,787.

Mining Machine. N. D. Levin, Columbus, Ohio, assignor to the Jeffrey Mfg. Co., Columbus, Ohio. 1,371,314. March 15, 1921. Filed Nov. 21, 1916. Serial No. 132,681. Renewed Feb. 4, 1921. Serial No. 442,593.

Shoveling and Loading Machine. John C. Brackett, Chicago, Ill., assignor to Middlemiss and Brackett, Milwaukee, Wis. 1,371,345. March 15, 1921. Filed May 15, 1917. Serial No. 168,692.

Miner's Lamp. Green Turner, Fort Sereen, Ga. 1,371,823. March 15, 1921. Filed Oct. 27, 1917. Serial No. 198,863.

Mine Switch. Louis Petroff, Burgettstown, Pa. 1,373,147. March 29, 1921. Filed July 24, 1921. Serial No. 313,071.

Coming Meetings

Mine Inspectors' Institute of America will hold its twelfth annual meeting at Charleston, W. Va., July 12 to 15. Secretary, J. W. Paul, Bureau of Mines, Pittsburgh, Pa.

Illinois and Wisconsin Coal Dealers' Association will meet at Chicago, Ill., July 13 and 14.

Missouri State Retail Coal Merchants' Association will hold its annual meeting at the Planters Hotel, St. Louis, Mo., May 17 and 18. Commissioner E. J. Wallace, Pierce Bldg., St. Louis, Mo.

American Society for Testing Materials will hold its annual meeting at the New Monterey Hotel, Asbury Park, N. J., June 20 to 24. Secretary, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

Illinois Mining Institute will hold its spring outing the early part of June on the Mississippi and Illinois Rivers, the boat leaving St. Louis for Peoria on June 3 and returning on June 5. Secretary, Martin Bolt, Springfield, Ill.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The 24th annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.

American Institute of Chemical Engineers will hold its spring meeting, June 20 to 24 at Detroit, Mich. Secretary, Dr. J. C. Olsen, Polytechnic Institute, Brooklyn, N. Y.

The American Wholesale Coal Association will hold its annual convention in Washington, D. C., June 7 and 8. Secretary, G. H. Cushing, Woodward Bldg., Washington, D. C.

The International Railway Fuel Association will hold its thirteenth annual meeting at the Hotel Sherman, Chicago, Ill., May 24, 25 and 26. Secretary, J. G. Crawford, Chicago, Ill.

The National Coal Association will hold its next annual convention at the Waldorf Astoria Hotel, New York City, May 19 and 20. White Sulphur Springs hotel reservations have been cancelled. Secretary, W. B. Reed, Commercial National Bank Bldg., Washington, D. C.

The American Society of Mechanical Engineers will hold its spring meeting May 23, 24, 25 and 26 at the Congress Hotel, Chicago, Ill. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

National Retail Coal Merchants Association will hold its annual meeting May 12, 13 and 14 at the Jefferson Hotel, Richmond, Va. Special rates on all railroads. Secretary, E. G. Gordon, Philadelphia, Pa.

Michigan-Ohio-Indiana Coal Association will hold its annual meeting June 15, 16 and 17 at Cedar Point, Ohio. Secretary, B. F. Nigh, Brunson Bldg., Columbus.

National Association of Cost Accountants will hold its annual convention at Cleveland, Ohio, Sept. 14, 15 and 16. Secretary, S. C. McLeod, 130 West 42d St., New York City.